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INTRODUCTION TO
DISEASES OF THE CHEST

By

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ADDRESSES AND ORIGINAL ARTICLES

CAUSATION AND TREATMENT OF DERMATITIS*

BY RUPERT HALLAM, M.D. Edin., M.R.C.P. Lond.
LECTURER IN DISEASES OF THE SKIN, UNIVERSITY OF SHEFFIELD

IF we choose to examine a classified list of patients suffering from skin disease who have attended the out-patient department of any general hospital, we shall find a striking preponderance of cases under the heading "dermatitis"; and dermatitis, in its broad sense, probably exercises the ingenuity and patience of the physician more than any other group of skin diseases.

Dermatitis is a comprehensive term: it is characterised by polymorphic lesions in which papules or vesiculæ may predominate; or the only clinical signs may be a diffuse redness; or not infrequently all of these may be present together. The variations depend upon factors such as the type, concentration, and duration of the contact of the irritant; also on accessory influences due to infection and remedies which have already been applied. Unfortunately the objective signs give little indication of the causation, and the determination of the ætiology is largely dependent on a detailed history of the sequence of events which preceded the onset of the dermatitis.

Confusion has arisen in the minds of many regarding the distinction between dermatitis and the older term eczema, and as eminent writers differ in their interpretation of the word eczema, the perplexity is understandable. Indeed, some dermatologists go so far as to abolish eczema from their vocabulary. In order to simplify the issue I will endeavour to explain what the term dermatitis may imply. It is, of course, an inflammatory reaction of the skin which may arise from a wide variety of causes, but it is not sufficiently appreciated that there is a considerable difference in the individual resisting power of the skin. One person can tolerate a certain strong irritant on the skin with impunity, whereas another apparently healthy man or woman cannot. Actually, the resisting power of the skin may be estimated fairly accurately by the following simple procedure. Turpentine or some other irritant is applied in various dilutions to the skin for 24 or more hours. It is found that some skin will tolerate a mixture of 75 per cent. turpentine in olive oil without any evidence of a reaction, whereas another may have a reaction with 55 per cent. concentration in the same length of time. Skin contact applications are now widely used as a means of detecting the cause of dermatitis, and are known as "patch tests." The suspected substance, either full-strength or diluted, is applied to the skin, usually on a fragment of gauze 1 cm. square. This is covered with a similar-sized piece of Cellophane and fixed to the skin. At the same time it is advisable to apply a saline control in the vicinity. Examination of the skin should be made in 24 hours, but occasionally the reaction is delayed for two or more days. The test is not infallible but is nevertheless of great value, and the time may come when advantage will be taken of this test in selecting workers for various trades.

Individuality has also an important bearing on the origin and course of dermatitis, for scratching or rubbing due to lack of self-control may change a trivial localised patch of inflammation into a generalised dermatitis which may cripple the patient for many months.

Recognising the important rôle which low-grade physical and mental resistance may play, we can consider a simple classification which for convenience may be shown diagrammatically as follows:

DERMATITIS.

(1) Traumatic dermatitis.	(3) Atopic dermatitis (infantile eczema and sequelæ).	(2) Sensitisation dermatitis (often referred to as eczema).

Traumatic dermatitis is the inflammatory reaction of the skin following application of an external irritant, for instance a mustard leaf. It often arises after contact with acids, alkalis in certain trades, also soft soap and other domestic irritants. The term is sufficiently comprehensive, for under "trauma" we may include even sunburn and inflammation following contact with organisms. The most familiar example the practitioner has to deal with is the unfortunate woman with red œdematous weeping hands who spends a considerable proportion of her day over a wash-tub, or in scrubbing floors. There comes a time when the alkali in soap and in washing powders destroys the horny layer of her skin more quickly than it can be replaced—the result is the dermatitis. Strange to say, she is the last person to recognise the cause, for she is obsessed with the idea that some evil has entered her circulation which necessitates the ingestion of the appropriate "blood mixture."

Removal of the cause is obviously the scientific method of treating all forms of traumatic dermatitis, but it is not always a simple matter, for it may interfere with the means of earning a livelihood. However, with a little common-sense such a misfortune may often be obviated. For instance, rubber gloves may be worn for short periods when immersion of the hands in irritating fluids is necessary. In addition, wearing cotton gloves during the remainder of the day preserves the skin from irritants such as heat, cold, and grime, and thus allows repair of the tissues. Smearing a mixture of equal parts of lanoline and wax on the exposed area before commencing work is another means of protecting the skin. The application of spirit, or 5 per cent. solution of tannic acid twice daily will harden the skin. It is imperative that patients should realise that protection is the essential treatment, not only from any particular irritant which has been responsible for the breakdown of the skin, but from all others. Merely washing once or twice a day with soap and water may prolong indefinitely a dermatitis which has been excited by some other irritant.

The longer a dermatitis is allowed to continue, the more sensitive the skin becomes, and the longer time it requires to recover; it is therefore important that the cause should be removed with the least possible delay. In my experience there is a tendency to continue working, even though the signs have been recognised, presumably with the hope that the skin may recover without enforced rest—a most improbable event.

SENSITISATION DERMATITIS

I will now pass on to consider that interesting form of dermatitis which we know as sensitisation dermatitis. The clinical appearance and histological changes

* An address given to the Huddersfield Medical Society, Dec. 8th, 1937.

are similar in many respects to the reaction which follows trauma, but the mechanism differs. In order to explain the pathology of the reaction it is convenient to take as an example the well-recognised primula dermatitis. We are indebted to Dr. Cranston Low for a description of an interesting experiment which he performed on himself some years ago (Low 1924). He scraped the skin of his forearm and rubbed into it the crushed leaf of the plant; this was not followed by any inflammatory reaction. Three weeks later he again rubbed the leaf into the same site, and on this occasion an intense reaction followed within 12 hours. Before commencing the experiment he could handle the primula or rub the leaf on his skin with impunity. Thus he succeeded in sensitising his skin to the primula, and like most gardeners who have been sensitised to the plant, he remains susceptible. Many other plants and grasses including the daffodil, feverfew, and particularly the popular chrysanthemum, have the same property of exciting a dermatitis in a sensitised individual, even when minute quantities of the substance are carried by the hands or clothing of a third person. I recall the case of a patient who sustained a dermatitis of the face and neck after contact with the hands of a nurse who had previously arranged some primula blooms in the sick-room. And as long ago as 1898 Sir Arthur Hall recorded a case of recurring attacks of dermatitis due to sensitisation to phenylhydrazine hydrochloride. On two occasions a relapse followed the short visit of a third person who had been working with this substance.

Similarly the skin may become sensitised by a large number of substances met with in certain trades (e.g., the baker from contact with dough); by various chemical substances contained in ointments; by fabric dyes; by cosmetics such as hair dye, lip-stick, face-powders; and by the following antiseptics—picric acid, boric acid, and flavine. Even as a sequel to exposure to sunlight the skin may become sensitive. I have already mentioned that sunburn is regarded as a traumatic dermatitis, but we know by experience that a return to normal surroundings is followed by complete recovery of the skin, until the next visit to the sea-side. On the other hand, the person who has become sensitised by exposure to sunlight is so intolerant that a few minutes' subsequent exposure to bright daylight at home may cause a painful reaction, and the sufferer may have no alternative but to stay indoors, except in the evenings, during the summer-time. This intolerance to the shorter light waves is usually acquired after a prolonged exposure to sunlight. It is interesting to note that individuals in this unfortunate predicament are protected by window glass, for ordinary plate glass acts as an efficient filter of ultra-violet light.

Primarily, a traumatic dermatitis is limited to the area of the skin which has been in contact with the particular irritant, but a sensitisation dermatitis is inclined to spread, and even involve distant skin surfaces. Many practitioners will recall the onset of a dermatitis on the face and neck following the application of some unsuitable ointment to an ulcer on the leg. The tendency to involve distant areas of skin may even be seen after traumatic dermatitis, provided the trauma has been sufficiently prolonged. In such a case the skin has probably become sensitised by some product of inflammation in the injured skin, and this has been transported by the blood to other sites. Another important fact is that sensitisation to one substance not infrequently leads to sensitisation to others, and consequently gives rise to further difficulties in the treatment.

So far I have confined my remarks to sensitisation dermatitis produced by the external contact with chemical substances, but it is probable that the same phenomena may follow the infection of the skin by certain organisms, which accounts for the train of events in seborrhœic dermatitis, and in some forms of dermatitis associated with interdigital dermatitis of the foot.

Again, although all the examples quoted have referred to sensitisation by the external route, most authorities think that the skin may become sensitised by chemical substance, food, toxin, or organisms reaching it by means of the blood stream. Thus injection of Salvarsan, whether intravenous or intramuscular, is followed in a small proportion of cases by a dermatitis which may be very intractable or even fatal. Another example is dermatitis following the application of iodine to the skin and iodism when it is administered orally. In this connexion may be mentioned the increased sensitivity of the skin to sunlight in persons suffering from a deficiency of vitamins, as is seen in the typical dermatitis on the dorsa of the hands and other exposed parts in cases of pellagra.

ECZEMA

Referring to the diagram, it will be noted that sensitisation dermatitis is also bracketed as eczema and many physicians believe that this very common eruption of the skin can be satisfactorily accounted for by a sensitisation of the skin from either external or internal causes. Other authorities invoke in addition a morbid predisposition which is usually acquired following digestive disturbance, endocrine abnormalities, metabolic disorders, focal sepsis, and psychological upset; but it is significant that eczema is rarely met with in the patients suffering from the above diseases, who crowd the medical out-patient and wards of the hospitals in this country. It must be agreed that the pathology of the so-called predisposition is by no means satisfactorily explained. The exciting cause of the onset of the primary lesion is often a degree of trauma or infection which is inoffensive to a normal individual. In many instances it gives rise to a circumscribed group of papules on a red œdematous base. Within a few hours the papules become vesicles which are soon replaced by pin-head-sized crusts of dried serum. The lesions may extend in an irregular fashion locally, and characteristically other lesions appear on distant areas of skin without any apparent cause. No part of the skin is exempt from manifestations, and the rash may be vesicular, erythematous, dry, scaly, or lichenfied. The distribution of this polymorphic rash is variable; it may or may not be symmetrical, and unless there is infection by organisms there is no adenitis. It is at times associated with persistent insomnia, and not infrequently with nervous depression. The multiplicity of the occasional causes suggest that it is a syndrome and not a morbid entity, the predisposition being the common factor. Chronicity is a characteristic feature, for it is apt to recur for one or more years.

The relationship between eczema and industrial dermatitis is of growing interest. MacCormac (1937) has pointed out recently that the age of incidence of idiopathic eczema and of industrial dermatitis, particularly in males, has a very similar curve. Unfortunately there is no pronounced clinical distinction between the two types, so the experienced examiner relies largely on a well-balanced history and meticulous attention to detail to guide him in deciding the ætiology.

ATOPIC DERMATITIS

For some years there has been a feeling that infantile eczema and the sequelæ—flexural eczema and prurigo—should be regarded as an entity and be distinguished from other eczemas; and in the United States it is now customary to refer to the group as manifestations of the atopic state. The name serves to stress the distinction and is becoming more widely adopted. The state of atopy includes not only dermatitis, but also predisposition to a particular type of allergy, the sufferers from which are liable to attacks of asthma, hay-fever, migraine, and other conditions. The desirability of separating this type of eczema from others is supported by the fact that in a considerable proportion of cases, if not in all, it is a familial disposition. The first male child appears particularly liable to be affected by this peculiar state, and Rogerson (1937) has drawn attention to certain personality characteristics such as over-anxiety and restlessness, which are common to most atopic children. In addition he points out that the average intelligence of the atopic child is measurably higher than that of the normal child.

It must be clearly understood that infants, like their elders, are equally, if not more, liable to suffer from dermatitis caused by trauma such as friction, chemical irritants, or infection by organisms, and this type of dermatitis must be distinguished from the atopic variety which usually begins as an intractable papular vesicular eruption on the cheeks during the early months of life. It may remain localised to the face or scalp, but there is a tendency to generalisation and polymorphosis.

There is the consolation that many infants recover entirely from atopic dermatitis during the second year of life, but unfortunately about 20 per cent. develop the eruption in the flexures, particularly the antecubital flexures, the wrists, the popliteal spaces, and around the neck, and the rash may recur off and on for many years with or without other manfestations of the atopic state. In a small proportion of cases the rash during infancy is slight, or non-existent, yet it appears during adolescence in the form of the adult type, which is characterised by intensely itchy papules and dry thickened skin affecting the flexures, face, and upper third of the chest and back. Trauma plays an important rôle as an exciting cause of the primary outbreak of the eruption. Sir Arthur Hall (1905) pointed out that in the great majority of cases of infantile eczema the rash began in the colder months of the year, and in some could be definitely traced to exposure to cold winds, and it is significant that should a child commence with eczema during the autumn there is little prospect of recovery until the following summer.

METHOD OF DISTINGUISHING BETWEEN THE VARIOUS TYPES OF DERMATITIS

The only scientific approach to the treatment of a dermatitis is to try to classify it under the appropriate type. To this end a discriminate history is an essential prelude. The examiner should consider the possible influence of the patient's occupation or hobbies, the relation of previous skin affections, and the family history. Knowing the site of origin of the present attack will often give a clue to causation. An unsuitable application may change a traumatic dermatitis into a sensitisation dermatitis, and at the same time entirely alter the prognosis. The advantage of the patch test should be borne in mind. The search for the cause may take considerable time and ingenuity before it can be tracked down. Failure of coöperation owing to lack of intelligence in the patient is frequently disheartening, and it is necessary to make it quite clear to the patient that the skin eruption may be due to one of many causes. As a rule it is advisable to eliminate the possibility of the dermatitis arising from external contact before the question of the allergen coming from some internal cause is considered.

TREATMENT OF DERMATITIS

In view of the multiplicity of the causes, and the polymorphic character of the rash, it is obvious that every case is a special problem and must be treated according to the particular requirements; nevertheless the general principles—elimination of the cause, rest, and protection—are applicable to all.

Rest.—If the area of dermatitis is extensive, and particularly if the lower limbs are involved, effective rest plays a very important part in the recovery, and in my experience many an acute dermatitis is allowed to extend and affect large tracts of skin because rest in bed has not been insisted upon. The even temperature obtainable in bed, freedom from friction, and freedom from business worries, are of great assistance in controlling the tendency to spread. Furthermore, under these conditions the patient is likely to be removed from external source of contact which may have precipitated the onset of the rash. Protection is also effected by light coverings of gauze and bandages.

Diet.—Most patients' friends, if not the patient himself, expect great advantage from some modification of the diet, but in practice these anticipations are seldom realised, and no material benefit ensues unless the skin lesions are associated with some metabolic disorder such as nephritis or diabetes, or unless the patient has an idiosyncrasy to some particular food or is suffering from vitamin deficiency.

Internal remedies.—The administration of sedatives to rest the mind and promote sleep are an inherent part of the treatment when the dermatitis is at all extensive. Luminal, sodium bromide, and chloral hydrate are amongst the most useful drugs for this purpose.

Local applications.—Whatever the cause may be, itching and burning of the skin is the most consistent complaint of the patient who is suffering from dermatitis, and little progress is likely to be made until this is relieved. It is not sufficiently recognised that frequently changed wet dressings have an antipruritic value far superior to that of ointments masquerading under the name of "sedativum," even though the latter may contain cocaine and other analgesics. During the acute stage, when the inflammation is intense and accompanied by weeping, gauze soaked in lead lotion, or ½ per cent. silver nitrate lotion, should be changed hourly, and at night covered with waterproof material to prevent evaporation. When the weeping has abated the following lotion will be found to be a most valuable remedy: zinc oxide and kaolin, āā 1 oz.; glycerin, ½ oz.; water, to 12 oz. It has the advantage that it may be used with impunity, both for relieving the congestion and for cleansing purposes in all types of dermatitis; furthermore, it is inexpensive and therefore there are no reasons why it should not be used freely. Liq. plumbi subacet. may be added with advantage, and in the chronic stage the addition of ¼ to ½ per cent. crude coal tar or liq. picis carb. will stimulate recovery of the skin. Another well-tried and useful remedy is pasta zinci co. (Lassar's paste). It is suitable in the subacute stage of dermatitis, and the addition of a small percentage of tar may be tried tentatively when the inflammation has

subsided. It is a good practice to try any new remedy on a limited portion of the eruption, in order to ascertain its suitability, and the intelligent use of a few well-tried remedies is preferable to the indiscriminate application of unknown but well-advertised preparations. Suitable doses of X rays applied in the subacute and chronic stage of dermatitis relieves irritation almost dramatically, and it is usual to find more improvement from their use than from any other remedy.

The treatment of infantile dermatitis in general principles differs little from that of the adult variety. Overclothing of the child, particularly at night, is a common error on the part of the mother, who should be made to understand that exposure to heat is almost invariably followed by intense irritation. Restraint from scratching must be enforced, and in no circumstances should soap and water be applied to the affected parts. Any necessary cleansing should be gently carried out by application of the zinc oxide and kaolin lotion referred to. It is an accepted fact that infants' skin is peculiarly tolerant to tar, and in view of its antipruritic qualities, may be commended as a suitable addition to either lotion or pasta zinci co.

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THE USE OF SULPHANILAMIDE IN THE TREATMENT OF MENINGOCOCCAL MENINGITIS

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SINCE sulphanilamide and its close allies* are now undergoing a clinical trial in the treatment of meningococcal meningitis, it has been suggested that further case reports should be made known. I am therefore describing six cases in which sulphanilamide has been used in this disease at St. Bartholomew's Hospital. The introduction of this use of the drug has been based on experimental work, notably by Buttle and others (1936) and Proom (1937), who demonstrated the protective effect of sulphanilamide on mice infected with meningococci. Branham and Rosenthal (1937) compared the results of drug therapy and serum therapy with ten strains of meningococci in mice. They found not only that the drug showed a marked therapeutic effect but that the combination of serum and drug therapy yielded much better results than either alone. It was then suggested that a combination of serum and drug therapy deserved a trial in man.

The following six cases therefore all received antiserum or antitoxin in addition to sulphanilamide. In none of them was any harmful effect produced by the sulphanilamide and all made good recoveries.

* I am indebted to Mr. G. Discombe for the following clarification of the various synonyms and trade-names of the groups of Prontosil drugs: (1) Prontosil flavum, Prontosil rubrum, or Red Prontosil (tablets). (2) Soluble Prontosil, Prontosil Solubile (5 per cent. solution). (3) Sulphanilamide, *p*-aminobenzenesulphonamide, Prontosil album, Streptocide, Sulphonamide-P (tablets). (4) Soluseptasine (5 per cent. solution). (5) Benzylsulphanilamide, benzyl-*p*-aminobenzenesulphonamide, Prosepta-sine (tablets). Inactive against meningococci.

CASE 1.—A man of 22, admitted on July 6th, 1937, with a history of 14 days' generalised papular rash and occipital headache. For four days he had had a sore-throat, and on admission he complained of headache and generalised pains. He rapidly became drowsy and photophobic in hospital and his temperature rose to 103·2° F. He vomited four times and showed extreme neck rigidity with pain on movement. Bilateral papilloedema was present; Kernig and Brudzinski signs were positive and abdominal reflexes absent.

Lumbar puncture revealed a turbid fluid (pressure over 300 mm.) containing over 100 mg. protein per 100 c.cm. and 1260 white cells (all polymorphs except an occasional lymphocyte). Large numbers of Gram-negative intracellular diplococci were seen and cultures produced a pure growth of meningococcus (Type I).

Treatment.—

July 6th: 2 P.M.: Intramuscular injection of 40 c.cm. of 2½ per cent. soluble prontosil.
3 P.M.: 55 c.cm. meningococcal antitoxin intravenously. Second drainage of spinal fluid (30 c.cm.).
8 P.M.: 50 c.cm. meningococcal antitoxin intravenously. Intramuscular injection of 20 c.cm. of 2½ per cent. soluble prontosil.
July 7th: 50 c.cm. meningococcal antitoxin intravenously. Intramuscular injection of 20 c.cm. 5 per cent. soluble prontosil.
July 8th: Sulphanilamide—1 gramme thrice daily by mouth—continued for 11 days.

Lumbar puncture was performed daily for a week and then less frequently.

Progress.—The patient remained very ill for the first two days, although his temperature fell to between 98° F. and 99·8° F. on the second day (July 7th). Herpes labialis developed and a post-nasal swab grew meningococci on culture. On July 9th his temperature was normal but he still complained of headache, and neck rigidity was still present. On the 12th he was able to sit up and read the paper. His headache was much better and clinical improvement was marked. On the 14th he developed a serum rash and in the course of the next few days the headache returned. Some dry lumbar punctures suggested that the return of headache was due to spinal block, and it was relieved by ventricular puncture, though for two weeks he was again feverish and headache was severe. On the 22nd he recommenced sulphanilamide (3·0 g. daily) for three days. By August 1st his temperature had settled to normal and he progressed well, although subject to occasional headaches. Papilloedema was absent and he slept well. He was discharged on August 24th and seen subsequently in good health.

Lumbar puncture findings were as follows:—

July 6th (2nd specimen): Very turbid; pressure 300 mm.; W.B.C. (white blood-cells) 35,400 per c.mm.; meningococci grown on culture.
July 8th: Slightly turbid; pressure 120 mm.; W.B.C. 3480 per c.mm.
July 9th: Opalescent; 80 mm.; 922 per c.mm.
July 10th: Clear; 485 per c.mm. (90 per cent. polymorphs).
July 15th: 1133 per c.mm.
July 16th: 2261 per c.mm.
July 19th: (Ventricular puncture). Opalescent fluid; polymorphs 980 per c.mm.; lymphocytes 70 per c.mm.; protein 90 mg. per 100 c.cm.; Gram stain, no organisms seen; culture sterile.
July 22nd: Clear fluid.

CASE 2.—A girl of 6 months. Admitted on Nov. 1st, 1937. For five days she had been off her food and vomiting. On the day before admission she was fretful and her neck became stiff. On admission her temperature was 102° F. and her pulse 160. She was ill and stuporose with neck rigidity, positive Kernig's sign, and tense fontanelle.

Lumbar puncture revealed a turbid fluid which with Gram's stain was seen to contain many intra- and extra-cellular Gram-negative diplococci. On culture a pure growth of meningococcus (Type II) was obtained.

Treatment.—

Antiserum:
Nov. 1st: 5 c.cm. polyvalent antimeningococcal serum intrathecally.
25 c.cm. polyvalent antimeningococcal serum intramuscularly.
Nov. 4th: 20 c.cm. Type II antiserum intramuscularly.
Nov. 5th: 20 c.cm. polyvalent antiserum intramuscularly.

Sulphanilamide:
Nov. 2nd: gr. 2½ twice daily for 4 days.
Nov. 10th: gr. 2½ twice daily for 2 days.
Nov. 15th: gr. 2½ twice daily for 2 days.
Nov. 19th: gr. 7½ twice daily for 2 days.
Lumbar puncture was performed daily for 2 weeks (10 to 30 c.cm. being removed each time) and then less frequently.

Progress.—The temperature rose to 104·2° F. on the day following admission, but fell to 99·4° F. the next evening. Her general condition after one week was good, although she remained pyrexial for two weeks and suffered from some vomiting. On Nov. 8th she developed a profuse serum rash. One month later, on Dec. 8th, she was discharged well.

Lumbar punctures.—
Nov. 2nd: W.B.C. 224 per c.mm. (polymorphs and lymphocytes in almost equal proportions).
Nov. 3rd: W.B.C. 420 per c.mm.
Nov. 4th: Clear.
Nov. 6th: 4 lymphocytes per c.mm.
Nov. 9th: Fluid sterile on culture.

CASE 3.—A girl of 19. Admitted on Nov. 25th, 1937. For four days she had complained of a cold in the nose, fever, headache, giddiness, and vomiting. Her neck became stiff and her head retracted. Herpes labialis was present. Her temperature was 102° F.; Kernig's sign was positive; there was no photophobia.

Lumbar puncture revealed turbid fluid under greatly increased pressure, containing 42,400 W.B.C. per c.mm. (96 per cent. polymorphs). Gram stain showed Gram-negative diplococci and on culture a pure growth of meningococcus (Type I) was obtained.

Treatment.—
Antiserum:
Nov. 25th: 20 c.cm. polyvalent antimeningococcal serum intrathecally.
Nov. 26th: 30 c.cm. polyvalent antimeningococcal serum intrathecally (in 2 doses).
Nov. 27th: 20 c.cm. polyvalent antimeningococcal serum intrathecally.
10 c.cm. Type I antimeningococcal serum intrathecally.
Nov. 28th: 20 c.cm. Type I antimeningococcal serum intrathecally.
Antitoxin:
Nov. 27th: 30 c.cm. meningococcal antitoxin in 150 c.cm. N. saline intravenously.
Nov. 28th: 30 c.cm. Ditto.
Sulphanilamide, &c.:
Nov. 25th: 40 c.cm. soluseptasine in 150 c.cm. N. saline intravenously.
Nov. 25th: Sulphanilamide 1·0 g. 4 times daily by mouth.
Nov. 26th: Ditto 1·5 g. 4 times daily (for 5 days).
Dec. 1st: Ditto 1·0 g. 3 times daily (for 7 days).
Total dosage: 54·0 g. sulphanilamide, 2·0 g. soluseptasine.
Lumbar puncture daily for 11 days, then less regularly.

Progress.—On Nov. 26th, the day after admission, her headache was easier but her back was more arched and she was cyanosed. Methæmoglobin was present in considerable concentration in her blood and the spinal fluid was found to contain 5·2 mg. of sulphanilamide per 100 c.cm. On Nov. 28th she could move her head better, and on the 30th the back was less arched. On Dec. 2nd she could flex her head slightly. On the 3rd she developed a serum rash, followed by arthritis. The temperature did not settle until four weeks after admission. She was discharged well on Jan. 9th.

Lumbar punctures.—
Nov. 25th: W.B.C. 42,400 per c.mm. Meningococci seen by Gram's stain and on culture.
Nov. 29th: 7500 per c.mm. Gram stain—no meningococci seen.
Nov. 30th: 3100 per c.mm.
Dec. 1st: 1600 per c.mm.
Dec. 2nd: 800 per c.mm.
Dec. 7th: 40 per c.mm.
Dec. 20th: 20 per c.mm.
Jan. 5th: 18 per c.mm. (14 lymphocytes). Sterile on culture.

CASE 4.—A boy of 14. Admitted on Feb. 17th, 1938. For five days he had complained of malaise, headache, and general aching pains. For one day he had had an erythematous and papular rash on the limbs. On admission he had a severe headache, was photophobic, and looked ill. There was neck rigidity with positive Kernig and Brudzinski signs. His optic discs were blurred, abdominal reflexes absent, and there was a right-sided extensor plantar response. Temperature 103·8° F. Lumbar puncture revealed turbid fluid under pressure of over 300 mm., containing 190 mg. protein per 100 c.cm. and about 6000 W.B.C. (polymorphs) per c.mm. A few Gram-negative intracellular diplococci were seen, but no culture was made.

Treatment.—
Antitoxin:
Feb. 18th: 60 c.cm. meningococcal antitoxin + 140 c.cm. N. saline intravenously.
Feb. 19th: Ditto.
Feb. 20th: Ditto.
Sulphanilamide:
Feb. 18th: Sulphanilamide 2·0 g. thrice daily.
Feb. 19th: Sulphanilamide 1·0 g. 4 times daily till Feb. 22nd when he had 21·0 g. sulphanilamide and appeared cyanosed.
Feb. 24th: Sulphanilamide 1·0 g. thrice daily till Feb. 28th when he had had a further 13·0 g.
Lumbar puncture daily for 14 days.

Progress.—The temperature on the second day was 104·4° F. in the morning but fell to 100° F. in the evening and was within normal limits in a week, though it became irregular again until the end of the second week. After the first week there was no neck rigidity, though Kernig and Brudzinski signs were still slightly positive. He looked and felt very much better. On Feb. 25th he developed a serum rash with recurrence of pyrexia (up to 102·4° F.). On March 12th he got up on a couch and on the 24th he was discharged well.

Lumbar punctures.—

	W.B.C. (per c.mm.)	Pressure (mm.).		W.B.C (per c.mm.).	Pressure (mm.).
Feb. 17th	6000	Over 300	Feb. 24th	32	240
Gram-negative diplococci seen.			Feb. 25th	22	270
Feb. 19th	1200	60	Feb. 26th	18	260
Gram film—no organisms seen. Sterile on culture.			Feb. 27th	10	240
			Mar. 2nd	3	285
Feb. 20th	270	300	Mar. 4th	2	300
Feb. 23rd	80	300	Mar. 18th	4	210

CASE 5.—A boy of 4. Admitted on Feb. 25th, 1938. For two days he had been feverish and complained of headache and giddiness. On the day before admission he vomited. On admission his temperature was 102·2° F., and he was semi-comatose and photophobic. There was internal strabismus of the left eye, neck rigidity, and head retraction. Kernig and Brudzinski signs were positive and there was a right-sided extensor plantar response.

Lumbar puncture revealed purulent fluid which formed a large clot and small deposit of pus on standing. The protein content was 390 mg. per 100 c.cm. Gram-negative diplococci were seen (mainly extracellular) amongst the pus cells and a pure growth of meningococcus was obtained on culture.

Treatment.—
Antiserum:
Feb. 25th: 10 c.cm. antimeningococcal serum intrathecally.
Feb. 26th: Ditto.
Mar. 1st: Ditto.
Antitoxin:
Feb. 25th: 30 c.cm. meningococcal antitoxin intravenously.
Feb. 26th: Ditto.
Sulphanilamide, &c.:
Feb. 25th: Prontonsil rubrum 5 c.cm. intramuscularly.
Feb. 27th: Sulphanilamide gr. 15 thrice daily by mouth for 8 days (cyanosis).
Daily lumbar puncture for 8 days, then less often.

Progress.—On Feb. 26th, the day after admission, his general condition was much improved and he was asking and answering questions. In three days he seemed very well. On March 2nd he developed a serum rash and slight œdema of the larynx, for which he received adrenaline. On the 28th he was up and very cheerful with no residual paralysis. His spinal fluid was reported clear on March 3rd, when there were only 60 W.B.C. per c.mm. By the 19th these had decreased to 6 per c.mm. He was discharged well on May 4th with sterile cerebro-spinal fluid.

CASE 6.—A boy of 7 months. Admitted on March 2nd, 1938. Two days previously he had become feverish, fretful, and dyspnœic, and one day previously

he had vomited and his temperature had been 104° F. On admission he appeared very ill, his temperature was 103° F., his pulse 168, and his respiration-rate 60. His alæ nasi were active and he cried if moved. His head was stiff but not retracted, and Kernig's sign was slightly positive. There were no definite abnormal findings in the chest, but a tentative diagnosis of pneumonia was made.

By March 5th, however, head retraction became very marked and a *lumbar puncture* revealed a turbid fluid, under pressure, containing 27,800 W.B.C. per c.mm. and Gram-negative diplococci. On culture meningococcus (Type I) was grown. A radiogram of the chest on March 7th showed increased clouding at the root of the left lung.

Treatment.—

Antiserum:
Mar. 5th: 6 c.cm. antimeningococcal serum intrathecally.
Mar. 6th: 10 c.cm. antimeningococcal serum intramuscularly (in 2 doses).

Sulphanilamide, &c.:
Mar. 5th: 3 c.cm. soluseptasine intramuscularly 4-hourly (5 times).
Mar. 6th: 5 c.cm. soluseptasine intramuscularly 4-hourly (7 times).
Mar. 7th: Sulphanilamide gr. 2 4 times daily by mouth for 6 days.
Mar. 13th: Sulphanilamide gr. 4 4 times daily by mouth for 3 days.
Mar. 8th: 8 c.cm. of 0·8 per cent. sulphanilamide in N. saline intrathecally for 8 days.
Lumbar puncture almost daily from Mar. 5th to 15th.

Progress.—Temperature remained high at first, but fell to 99° F. after a week. The child then developed vomiting and diarrhœa and the temperature ranged about 100° F. for ten days, after which the infection subsided. Opisthotonus had become very marked at the beginning of treatment, but by the third week there was very little neck rigidity and the child was quite happy. On March 8th the C.S.F. (cerebro-spinal fluid) contained only 240 W.B.C. per c.cm. and no diplococci were seen, though they were grown after 48 hours' culture. On the 14th the C.S.F. contained 14 cells (polymorphs) per c.mm., and on the 17th it contained 2 polymorphs per c.mm. and culture was sterile. The child was discharged well on April 11th.

DISCUSSION

Although this small group of cases can be of no statistical importance, the progress of each of the patients was striking. In all six instances meningococci were seen in films of the spinal fluid, and in all but one (in which no culture was made) the organism was grown on blood-agar. All six cases were treated with both specific therapy and drug therapy and made complete recoveries, the spinal fluid becoming sterile.

All the cases were particularly severe, and the general impression was gained that combined serum and drug treatment produced results beyond expectation. Unfortunately there was no uniformity in the method of treatment, since the patients were in different wards, and prontosil derivatives were given by mouth, intramuscularly, intravenously, and intrathecally, the usual dose by mouth being from 1 to 6 g. of sulphanilamide daily. Except for transient cyanosis there were apparently no untoward effects from the drug. All but one of the six cases, however, developed some form of serum sickness.

In two of the cases the sulphanilamide content of the C.S.F. was estimated. In Case 3 this was found to be 5·2 mg. per 100 c.cm. on the second day. In Case 6 it was found to be 2·5 mg. per 100 c.cm., while the patient was having gr. 2 four times daily, and 2·4 mg. per 100 c.cm. the day after this dose had been doubled.

Marshall and others (1937a and b) showed experimentally that sulphanilamide given by mouth rapidly enters the C.S.F., both in normal human subjects and those suffering from meningococcal meningitis; they suggested that, when possible, oral administration would appear to be indicated when its presence in the C.S.F. is desired. The concentration of sulphanilamide in the C.S.F. is very variable and Crawford and Fleming (1938) found that the concentration altered considerably with a constant dosage of sulphanilamide, but also that the amount found in the C.S.F. seemed to bear no relation to the course of the disease nor to the speed with which the fluid was sterilised. They suggest giving the drug intrathecally in cases in which the meningeal symptoms do not clear up rapidly, in cases in which the C.S.F. does not rapidly become sterile, and in cases which show intolerance to the drug by other routes.

Schwentker, Gelman, and Long (1937) treated 10 cases of meningococcal meningitis with intrathecal and subcutaneous sulphanilamide alone. In no case was the organism recovered from the C.S.F. longer than three days after beginning treatment, and the rate of clinical improvement varied from rapid to gradual, with only 1 death. Eldahl (1938) also treated the disease exclusively with sulphanilamide, given intrathecally and intramuscularly. His cases were all severe ones under the age of 4, and out of 12 cases so treated 9 recovered. He concluded that the intrathecal route alone was insufficient and was best combined with oral or intramuscular administration, which can affect the meningococci found outside the spinal canal.

Neal and Appelbaum (1938), on the other hand, dealing mainly with streptococcal and pneumococcal meningitis, state that they do not feel sure that there is any advantage in administering the drug intrathecally, for most of their recovered cases were not treated in this manner. Crawford and Fleming (1938), in their comprehensive paper, describe the recovery of 9 out of 10 children (4 of them under 1 year of age) from meningococcal meningitis by the use of intramuscular and oral sulphanilamide. In the first 2 cases intrathecal antiserum was also used and in the last 4 cases intrathecal sulphanilamide in addition to the oral and intramuscular administration was employed.

No decision as to the best method of administering the drug can yet be arrived at, though it would appear that full dosage by mouth at the earliest opportunity is not only simple but may be the most effective procedure. Whether sulphanilamide given alone is as effective as in combination with antiserum and antitoxin, whether sulphanilamide is ever to be given intrathecally, and whether the variable concentration of the sulphanilamide in the spinal fluid is of any great significance, are questions which at present must remain open.

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SURGICAL TREATMENT OF PITUITARY BASOPHILISM

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MEDICAL REGISTRAR AT THE HOSPITAL

Cushing's syndrome of pituitary basophilism is now a sufficiently well-recognised clinical entity that for the purposes of this paper it does not require detailed description.

Cushing (1932a and b) reported 14 cases of a syndrome of plethoric obesity, loss of sexual activity, hirsutism, cutaneous striation, polycythæmia, vascular hypertension, hyperglycæmia, and osseous decalcification. The association of this syndrome with basophil adenomas of the pituitary body promised for a time to be a distinct clinical entity, but soon there appeared reports of a syndrome that may be clinically indistinguishable from Cushing's, which arose in association with tumours of the adrenal cortex (Lescher and Robb-Smith 1934, Kepler 1933, Hare 1935, Calder and Porro 1935, Oppenheimer, Globus, Silver, and Shaskin 1935). Moreover, Leyton (1934) reported two cases in which many of the features of Cushing's syndrome were associated with malignant tumours of the thymus.

Crooke (1935), on examining the pituitaries from 12 cases of Cushing's syndrome, 6 of which showed a basophil adenoma, 3 an adrenal tumour, and 3 a thymoma, found a striking change in the cytoplasm of the ripe basophil cells of the pituitary. This change consists of the replacement of the normal granular appearance of the cytoplasm by a dense homogeneous hyaline material which is highly refractive and which has characteristic staining reactions. In the presence of a basophil adenoma the change was observed not in the cells of the tumour itself but in the remaining basophil cells of the pituitary. In certain cases of basophil adenoma, which were chance findings and were unassociated with Cushing's syndrome, the hyaline change was not observed. Crooke concludes that the change is an expression of altered physiological activity, which is the alteration of fundamental significance in Cushing's syndrome.

TREATMENT

In view of the observation that in certain cases of Cushing's syndrome a cure has followed the removal of a cortical adrenal tumour (Kepler and others 1934), it seems that the exclusion of the possibility of such a tumour is an essential preliminary to treatment. Radiological evidence of an adrenal tumour should first be sought; this may be revealed by the presence of calcification, or by the downward displacement of one kidney as shown by pyelography, or by radiography after the injection of air into the perirenal tissues. Even in the absence of any such evidence of an adrenal tumour Kepler (1934) recommends exploratory laparotomy as a routine procedure, and there is much to be said in favour of this, since the overlooking of an adrenal tumour and the concentration of attention on the pituitary would be calamitous.

If an adrenal tumour is found and removed, it is of the utmost importance that cortical extract and saline should be in readiness for intravenous injection, because adrenal insufficiency may follow the removal of a functionally active tumour in the same way as severe tetany may follow the removal of a parathyroid adenoma. The treatment of an "oat-cell" carcinoma of the thymus, such as was present in Leyton's two cases, does not seem to come within the scope of practical therapy, even were such a tumour recognised before death.

If the presence of an adrenal or thymic tumour be excluded we consider it justifiable to attempt to influence the activity of the pituitary. Deep radiotherapy directed at the pituitary region has in a few cases produced striking results, notably in the cases of Lawrence (1933) and Jamin (1934). Cushing also obtained obvious improvement in one of his cases with radiotherapy, but three years later there was a return of symptoms, and a rapid rise of blood pressure terminated in the occurrence of a pontine hæmorrhage. A basophil adenoma of the pituitary was found at autopsy (Kessel 1936).

If radiotherapy should fail to produce any improvement, and if the life of the patient appears to be threatened by persistent hypertension or osseous decalcification, the question of a surgical attack upon the pituitary may then be considered. Assuming that there is a state of hyperpituitarism in Cushing's syndrome, and that Crooke's hyaline change is a manifestation of this hyperpituitarism, we consider it reasonable to attempt to reduce the secretory activity of the anterior pituitary, when deep radiation therapy has failed, by the implantation of radon seeds into the pituitary, and we have done this in the following two cases.

FIRST CASE

A woman aged 26 was first seen on Nov. 4th, 1933, when she complained of headache, shortness of breath, adiposity, and high colour.

These symptoms were all of three years' duration. The obesity developed rapidly and affected chiefly the abdomen. Menstruation began at the age of 16, but was never regular; she might go as long as five months without a period. There had been complete amenorrhœa for three years. She complained of nocturnal frequency of micturition and a continuous aching pain in the left side. During the previous year a growth of hair had appeared on the lips and chin. She had been fair until the age of 4 when, following scarlet fever, her hair became dark. The previous health and family history were unremarkable.

Examination.—Weight 11 st. 5 oz. Very high colour of face (Fig. 1A). Trunk very obese, especially about abdomen (Fig. 2A). Legs and arms did not share in the obesity. Purple striæ atrophicæ present on abdomen. Hair of head dark, somewhat scanty, and brittle. Scanty growth of hair on chin and lips, and fine dark hair on arms and legs. The pubic hair reached the umbilicus. The legs showed a blotchy cyanosis. Lungs: no abnormal signs but a troublesome cough. Blood pressure: 175/110 mm. Hg. Accentuation of aortic second sound. Spine: slight general kyphosis. Central nervous system normal. Visual fields normal. Fundi normal.

Special investigations.—Blood: Wassermann reaction negative; urea, 30 mg. per 100 c.cm. serum; calcium, 10·2 mg. per 100 c.cm. serum; phosphorus, 2·88 mg. per 100 c.cm. plasma; red cells, 6,160,000; hæmoglobin, 118 per cent.; white cells, 15,000 (polymorphs 73 per cent., lymphocytes 17 per cent., monocytes 9 per cent., eosinophils 1 per cent.). Aschheim-Zondek reaction negative. Electrocardiogram: sinus rhythm, left axis-deviation. Radiography: sella turcica of normal outline; vertebræ subnormal in density and trabeculæ of femora coarse; heart generally enlarged. Excretion urogram: both right and left renal pelves within normal limits, and kidneys undisplaced.

Preliminary treatment.—The patient received three courses of deep radiotherapy directed to the pituitary fossa, the only effects of which were a slight reduction of the hæmoglobin percentage and three menstrual losses. The weight was unaffected and the blood pressure continued to rise (see Table I). It was resolved that some further attempt should be

made to control the disease, and it was decided that a direct attack upon the pituitary should be carried out.

TABLE I—PROGRESS OF CASE 1

Date.	Weight.	Blood pressure (mm. Hg).	Menses* (days).	Red cells (millions per c.mm.).	Hæmoglobin (%).
1933.	st. lb.				
Nov. 4th	11 0	175/110	Nil for 3 yrs.	6·16	118
	RADIOTHERAPY				
Dec. 14th	10 12	190/110	0	4·96	100
1934.					
Jan. 12th	11 1	150/100	0	..	..
Feb. 6th	11 4	190/120	+	..	..
March 2nd	11 2	175/110	0	5·35	106
	RADIOTHERAPY				
March 22nd	10 12	170/110	0	5·01	100
April 24th	11 2	185/110	+	..	..
May 22nd	11 3	160/110	+	..	..
June 19th	12 0	185/110	0	..	..
	RADIOTHERAPY				
July 18th	11 12	190/110	0	5·52	80
Sept. 11th	11 3	180/100	0	4·67	80
	OPERATION (NOV. 21ST): INSERTION OF RADON				
1935.					
Jan. 3rd	11 10	150/95	6	4·53	65
Feb. 14th	11 6	150/90	0	5·37	68
April 25th	11 1	145/95	0	5·15	65
Aug.	..	..	6	..	..
July	..	..	6	..	..
Sept. 30th	..	135/90	6	5·24	65
Oct. 28th	11 10	150/110	6	..	..
Dec. 2nd	..	145/90	6	..	..
1936.					
Jan. 6th	..	145/100	4	..	..
Feb. 3rd	11 6½	150/105	5	..	..
March 6th	..	160/100	0	..	..
April 30th	..	..	7	..	..
May 26th	..	145/90	4	..	..
Sept. 14th	11 2	150/100	0 for 4 mths.	5·00	67
Nov. 9th	11 5	140/100	6	..	..
1937.					
Jan. 4th	..	135/100	0	4·86	65
Nov. 18th	11 4	140/100	0	4·85	63

* Menstrual period and duration reported on attendance.

Operation.—On Nov. 21st, 1933, under endotracheal nitrous oxide and oxygen anæsthesia, a right transfrontal exploration was made. In spite of the elevated blood pressure there was very little bleeding apart from that resulting from an increase in vascularity of the bone. The rarefaction of the bone was shown by its softness and a tendency to crumble when bitten by the skull forceps. The region of the sellar diaphragm was exposed without difficulty and two small longitudinal incisions were made in the diaphragm with a right-angled knife. The diaphragm had a brown colour but there was no gross evidence of a pituitary tumour. Through the incisions two radon seeds were inserted into the sella, each of 2 millicuries dosage with gold screenage (Fig. 3). The operation was without incident and the patient made an uncomplicated post-operative recovery.

Progress.—Since the operation the patient's condition has shown an obvious improvement. The weight has shown little alteration, but the blood pressure maintains a generally lower level than before the operation and the menses are much more frequent. The hæmoglobin percentage has fallen to about 65 per cent., at which level it would appear to have settled. It is noteworthy that when the hair grew again after the operation, for which the whole head had been shaved, it grew a medium brown colour, having previously been dull black, and is glossy and of better quality (Fig. 1 B). The growth of facial hair has ceased. The face has lost its previous bloated appearance and, were it not for the persistence of the abdominal obesity, the patient would pass for normal. No new striæ have appeared and acrocyanosis has gone (Fig. 2 B). The blood-sugar curve had returned to normal before operation and has remained so (Fig. 4).

A B

FIG. 1 (Case 1).—(A) Before any treatment (Nov. 11th, 1933). (B) 26 months after insertion of radon in pituitary (Feb. 4th, 1937). Note change in colour of hair.

Summary.—A woman aged 26 showed abdominal obesity, hirsutism, cutaneous striation, amenorrhœa, vascular hypertension, hyperglycæmia, polycythæmia, and slight skeletal decalcification. There was no evidence of an adrenal or thymic tumour. Slight improvement followed three courses of radiotherapy to the pituitary, but the insertion of radon into the pituitary fossa had a greater and more sustained effect, shown by a lowering of the blood pressure and hæmoglobin percentage and a return of menstruation.

TABLE II—PROGRESS OF CASE 2

Date.	Weight.	Blood pressure (mm. Hg).	Menses.	Red cells (millions per c.mm.).	Hæmoglobin (%).
1934.	st. lb.				
June 25th	9 2	..	0	..	..
July 12th	8 10	120/100	0	5·39	103
	RADIOTHERAPY				
Sept. 4th	8 5	130/95	0	..	..
	RADIOTHERAPY				
Nov. 14th	8 4	170/120	0	..	..
Dec. 12th	8 3½	160/125	0	..	..
1935.					
Jan. 10th	8 2	130/100	0	6·14	103
	RADIOTHERAPY				
Feb. 7th	8 2	130/110	0	..	..
April 23rd	8 4	140/110	0	..	..
May 21st	..	170/110	0	..	..
July 1st	8 13	150/105	0	..	..
Oct. 3rd	..	150/110	0	4·88	90
	OPERATION (OCT. 7TH): EXPLORATION OF ADRENALS. (OCT. 24TH): EXPLORATION OF PITUITARY FOSSA				
Dec. 5th	..	145/120	0	4·61	85
	OPERATION (MAY 25TH): INSERTION OF RADON				
1936.					
June 4th	..	145/115	0	..	..
Sept. 29th	..	145/120	0	5·91	75
1937.					
Jan. 11th	8 12	145/90	0	5·58	60
Feb. 4th	8 13	130/95	0	4·50	60
Nov. 18th	8 7	140/90	0	5·61	78

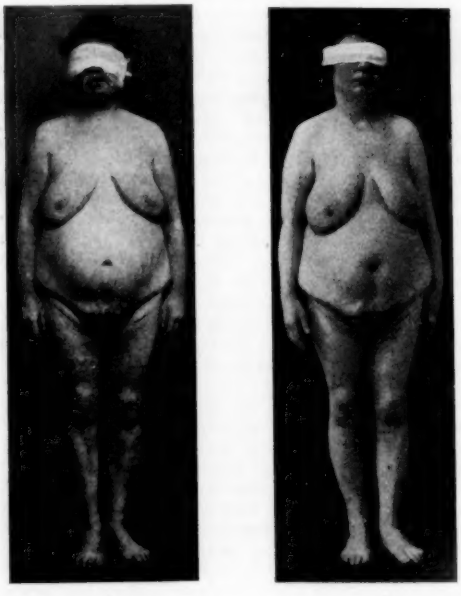
SECOND CASE

A girl aged 16 was first seen on June 22nd, 1934. She had enjoyed good health until 8 months previously, when menstruation, which had hitherto been regular, ceased completely.

At about the same time she noticed purple streaks on the calves of her legs which spread rapidly on to the thighs, flanks, shoulders, and breasts. She put on weight rapidly and a "roll of fat" appeared about her middle. Her face became round so that her friends failed to recognise her. Dark fine hair

appeared on the arms, chest, and back, and also slightly on the face. The hair of the head became darker and tended to fall out. The colour of the face became livid and her arms and legs often went blue. She made no other complaint at this time. The family history was irrelevant.

Examination.—She was a cheerful intelligent girl, 5 ft. in height and weighing 9 st. 2 lb. The face was round and bloated, the colour was high but not strikingly so (Fig. 5 A). The neck was thick and the thyroid gland was moderately enlarged. The breasts were large and pendulous, and there was a pad of fat over the lower cervical spinous processes. There was obesity of the abdomen but the limbs were normally proportioned (Fig. 6 A). Large purple striæ were present in the skin over the calves, thighs, flanks, breasts, and shoulders. The hair of the head was fine and black, and hair was growing over the rami of the mandible and on the arms and back. The pubic hair was normal in distribution. No abnormal physical signs were detected on the heart, lungs, abdomen, or central nervous system. The blood pressure was 120/100.



A B

FIG. 2 (Case 1).—(A and B as Fig. 1.) Note absence of acrocyanosis and of new striæ after treatment.

Special investigations.—Blood: urea, 30 mg. per 100 c.cm. serum; calcium, 10·6 mg. per 100 c.cm. serum; phosphorus, 2·66 mg. per 100 c.cm. plasma; red cells, 5,393,000; hæmoglobin, 103 per cent.; white cells, 8750 (polymorphs 79 per cent., lymphocytes 15 per cent., monocytes 5 per cent., eosinophils 1 per cent.). For sugar see Fig. 7. Radiography: sella turcica very small; the lumbar vertebral bodies showed decalcification.

Urine for gonadotropic hormone.—No œstrin in detectable amounts—i.e., below 15 units. No gonadotropic hormone of pregnancy type. Considerable quantities (more than 20 units) of œstrogenic gonadotropic hormone. This finding is not unlike the findings in menopausal and oöphorectomy cases (Pregnancy-diagnosis Station, Edinburgh).

FIG. 3 (Case 1).—Radiogram of normal-sized pituitary fossa showing position of radon seeds (natural size).

CLINICAL COURSE

Treatment and progress.—Three courses, each of 13 exposures, of deep radiotherapy were given to the pituitary region in July and October, 1934, and in January, 1935. No real improvement resulted and the blood pressure rose steadily, reaching a level of 170/120 mm. Hg on Nov. 14th, 1934 (see Table II). In March, 1935, she complained of pain in the thighs which made walking difficult, but nothing abnormal was found. In July, 1935, she complained of great muscular weakness, but the pain had gone. At that time new striæ had appeared on the arms. In view of the progressive deterioration in the patient's condition and the failure of deep radiotherapy, it was decided to make a direct attack on the pituitary after an adrenal tumour had been excluded. On Oct. 7th, 1935, an exploratory laparotomy was performed by Mr. Andrew Logan. Both adrenals were palpated through a midline abdominal incision and no enlargement or tumour could be detected.

Operation.—Under endotracheal nitrous oxide and oxygen anæsthesia, a right transfrontal exposure of the pituitary region was made on Oct. 24th, 1935. The bone of the skull showed the same appearances as that in the first patient. The sellar diaphragm appeared to be a little full and showed a distinct brown coloration. Although a supply of radon was at hand the exposure of the sellar diaphragm was so clear that it was decided to make an attempt to remove part of the anterior lobe of the pituitary, in view of the frequency with which basophil adenomas arise in the extreme anterior and superficial parts of the anterior lobe. Accordingly a T-shaped incision was made in the diaphragm, the transverse limb lying 1 mm. anterior to the plane of the hypophyseal stalk and the vertical limb extending forwards from it. Through this incision the exposed part of the pituitary was removed with a sharp spoon. As soon as the spoon was inserted into the pituitary a small

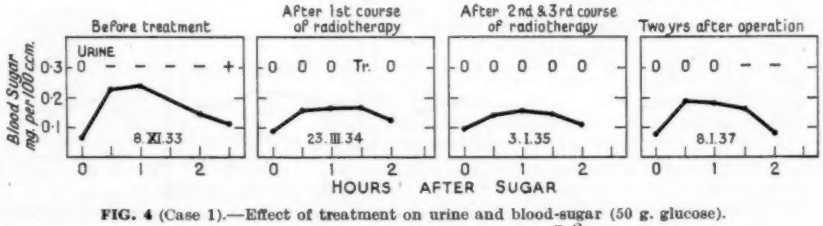


FIG. 4 (Case 1).—Effect of treatment on urine and blood-sugar (50 g. glucose).

A B

FIG. 5 (Case 2).—(A) Before any treatment (June 28th, 1934). (B) 8½ months after insertion of radon (Feb. 4th, 1937).

quantity of a pultaceous material was seen to be extruded from the anterior lobe. This might well have been the central part of a loose-textured basophil adenoma, but unfortunately the presence of bleeding precluded the obtaining of any of this tissue for histological examination. After all bleeding had been controlled the operation was concluded.

Pathology.—Examination of the fragments of the anterior lobe which had been removed showed no evidence of a basophil adenoma. Had such an adenoma been present it is reasonable to suppose that the tissue had been unavoidably lost during the operation. The parts of the anterior lobe showed an increase in eosinophil cells with the presence of cytoplasmic hyalinisation in the basophil cells.

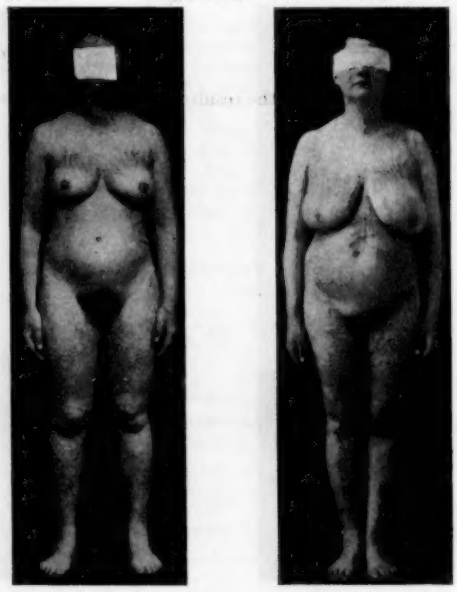
Further progress.—The operation was well withstood and convalescence was uneventful. There was no polyuria. The blood pressure fell to subnormal levels during the first week after operation, but had risen to 145/120 mm. Hg on Dec. 5th, 1935. Her condition remained practically unchanged until 5½ months after operation. At this time, while standing, she was seized by intense pain in the lumbar region of the spine and was obliged to remain in bed.

Readmission.—She was readmitted to hospital on April 17th, 1936, complaining of very severe pain in the lumbar region which was made worse by movement. There was a general kyphosis of the lumbar spine with tenderness on pressure over the upper three lumbar spinous processes. Radiographic examination of the spinal column showed pronounced decalcification of all vertebral bodies with a biconcave appearance and shortening of the bodies of the 11th and 12th thoracic and 1st lumbar vertebræ. It was evident that the disease process was still active, and in view of the absence of evidence of an adrenal or thymic tumour it seemed safe to suppose that the pituitary was still at fault.

Insertion of radon.—On May 25th the pituitary region was again exposed and three radon seeds were inserted into the sella. A total dosage of 9 millicuries with platinum screenage was employed and the seeds were left permanently in situ as in the first case.

Progress.—As soon as the patient had recovered consciousness she said that her backache had gone and she has remained free of it since. There was a post-operative polyuria which lasted for ten days, but recovery was otherwise uneventful. Since her discharge from hospital the patient has been in a perfect state of subjective health and can walk for long distances without backache. The weight, blood pressure, and blood examination figures will be seen in Table II, and the changes in the blood-sugar curve in Fig 7. There has been little change in the configuration of the body but the face has lost its bloated appearance (Figs. 5B and 6B). There is as yet no radiological evidence of recalcification of the vertebral bodies.

Summary.—A girl aged 16 when first seen showed abdominal obesity, hirsutism, cutaneous striation, amenorrhœa, hypertension, slight hyperglycæmia and polycythæmia, and gross skeletal decalcification. The adrenals were not enlarged. Radiotherapy and the removal of part of the anterior lobe of the pituitary would appear to have had no influence on the course of the disease, but improvement has followed more intense radiation treatment by the insertion of radon into the pituitary.



A B

FIG. 6 (Case 2).—As Fig. 5.

DISCUSSION

Although in the first case no histological confirmation of the pathology is available, no pituitary tissue having been removed, there is no reason to doubt, on clinical grounds, that the case was a typical one of Cushing's syndrome. At the time when the

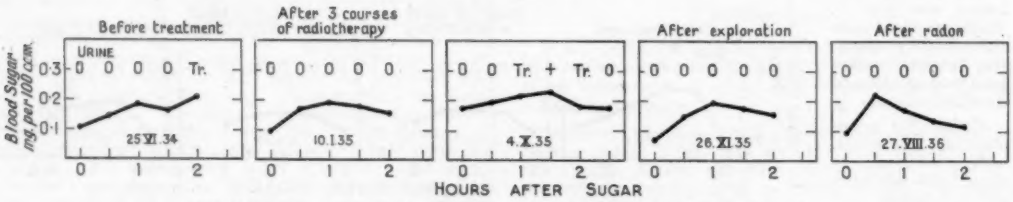


FIG. 7 (Case 2).—Effect of treatment on urine and blood-sugar (50 g. glucose).

operation was undertaken (November, 1933) the importance of adrenal tumours in producing many of the features of the syndrome was not fully appreciated, though in this case every care had been taken to exclude the possibility of an adrenal tumour short of an exploratory laparotomy.

In the second case the possibility of an adrenal tumour had been excluded by means of an exploratory laparotomy and histological verification of Cushing's syndrome had been obtained by the demonstration of the Crooke hyaline change. Whether or not a basophil adenoma was removed in this case is not known, but had such an adenoma been present in the pars anterior of the pituitary, its removal does not appear to have influenced the course of the disease. The relief from bone pain that followed immediately after the implantation of radon in this case seems to be analogous to that which may follow immediately the removal of a parathyroid tumour in generalised osteitis fibrosa. The blood-sugar curve shows a closer approximation to normal after operation than in the case of the first patient, but the reduction of blood pressure and the hæmoglobin percentage are approximately the same in both cases.

On whatever basis the results in these two cases are assessed it is evident that the implantation has not provided a "cure" for the syndrome. On the other hand considerable improvement has followed the operation and the menace of a progressively increasing blood pressure no longer exists. Moreover, in the second case the disablement resulting from osseous decalcification has disappeared after the radon implantation. The results following the use of 9 millicuries of radon in the second case are not strikingly different to those following a dosage of 4 millicuries in the first case, but the seeds in the first case were more favourably placed for influencing the activity of the pituitary, owing to the shape of the sella turcica.

Although both patients are in a state of excellent subjective health their external configuration has been little altered. The general appearances are however much improved as a result of the disappearance of the plethora and the growth of hair on the face.

In view of the doubtful part played by the basophil adenoma in Cushing's syndrome, it is our opinion that treatment that aims at removing such a tumour is not rational Our own experiences appear to lend support to Crooke's views that the hyaline change is one of fundamental significance on the production of the syndrome.

SUMMARY

Two cases of Cushing's syndrome in young women are described in which improvement followed the insertion of radon seeds into the sella turcica. Both cases had proved resistant to deep radiotherapy and in view of a progressive increase in blood pressure, and the presence of gross osseous decalcification in the second case, operation was considered to be justifiable.

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ACTIVE IMMUNISATION AGAINST EPIDEMIC INFLUENZA

BY MEANS OF ELEMENTARY-BODY SUSPENSIONS HEATED AT 57° C.

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IN the search for an influenza prophylactic various preparations of virus have been investigated with encouraging results. In America living virus has been tried; Stokes and his co-workers (1937) first used filtrates of the lungs of infected mice and later virus grown on chick-embryo tissue cultures, while Francis and Magill (1937) inoculated virus repeatedly passaged through tissue-culture media. Antibody formation was stimulated and no serious reactions were observed. An opportunity of demonstrating with certainty increased resistance to spontaneous infection was only occasionally available. Stokes et al., however, found during the 1937 epidemic that the incidence of infection among the vaccinated group was substantially reduced as compared with the unvaccinated controls.

Burnet (1938) has applied intranasally the living virus modified by repeated passage on the chorio-allantoic membrane of the chick embryo. Experiments previously carried out on mice (1937) showed that immunity could be induced by intranasal inoculation of the modified virus. Such immunity appeared to be due to the production of a subclinical or a mild form of infection, for small lung lesions were found in many animals killed and examined a short time after immunisation.

Although introduction of the living virus into the human tissues has not yet given rise to any ill effects, its use appears potentially hazardous. Shope (1936), during field investigations on swine-influenza, considered that several outbreaks in swine under observation arose directly from living virus given intramuscularly during active immunisation experiments.

Killed virus is therefore more suitable for human inoculation, provided it is immunogenic. Andrewes and Smith (1937) found that the suspensions of virus, first washed and then inactivated by treatment with formalin, caused an increase in the antibody titre of the serum on subcutaneous injection into human volunteers. As influenza has not since appeared among the group under observation, they have been unable to determine whether the antibody increase is related to increased resistance to infection.

Fairbrother and Hoyle (1937a) showed that "elementary-body suspensions" (E.B.S.) inactivated by heat at 57° C. had an immunogenic activity in mice comparable with that of the living virus suspension. They also found that 0·5 per cent. phenol was an excellent preservative. The activity of heated E.B.S. has now been examined in more detail.

TECHNIQUE

The various technical procedures have been fully described in earlier papers (Fairbrother and Hoyle 1937b, Hoyle and Fairbrother 1937), and only the general points need now be given.

Preparation of elementary-body suspensions.—Lungs of infected mice were ground up in saline and centrifuged at low speed for 20–30 minutes and the

supernatant fluid collected. This was centrifuged at high speed (approx. 13,000 r.p.m.) for one hour, the supernatant fluid being discarded and the deposit emulsified in saline. This suspension was spun at low speed for 5–10 minutes and the supernatant fluid again centrifuged at high speed for one hour. The deposit was then emulsified in saline to bring it to about the original volume and this constituted the E.B.S.; it was later found that a further spinning on the low-speed centrifuge for 5–10 minutes was useful in removing extraneous material.

Neutralisation tests were carried out on mice under ether anæsthesia; virus suspensions after centrifuging at low speed were used and the usual dose contained approximately 10,000 minimal infecting doses. For this test it is essential that the mice should be healthy; the use of weak, unhealthy animals gives rise to irregular results owing to secondary infection.

In the *complement-fixation tests* the antigen was a standardised suspension of dried infected mouse lung; serum dilutions were examined using 2½ M.H.D. (minimal hæmolytic dose) of complement.

PROPERTIES OF THE VIRUS

Action of heat.—Fairbrother and Hoyle (1937a) have shown that heat at 50° C. acting for 30 minutes killed much, but not all, of the virus, while heat at 57° C. resulted in its complete inactivation. There was no alteration in the physical character of the suspension such as is obtained by heating the crude virus suspension. These observations have been confirmed in this work.

Elementary-body suspensions prepared on various occasions have been heated in a water-bath at 57° C. for 30–45 minutes, usually in amounts of 5–8 c.cm. and contained in test-tubes. These have been tested in mice for infectivity along with the original virus suspension (Table I). The virus was almost always

TABLE I—INFECTIVITY TESTS

Inoculum.	Result.				
	D	++	+	+−	0
E.B.S. 57° C.	0	0	0	3	61
Original suspension ..	16	17	12	5	3

E.B.S. = elementary-body suspension; D = death in 2, 3, or 4 days; ++ = lesions in both lungs; + = lesions in one lung; +− = small lesion in one lung; 0 = nil.

destroyed; in only 3 out of 64 instances were lesions produced, and each of these was small and confined to the hilum of one lung. In 1 case living virus was obtained from the lesion by passage through mice but in the other 2 cases attempts to demonstrate virus were unsuccessful. These results indicate that, under the conditions of the test, 57° C. was approximately the thermal death-point of the virus.

Suspensions were also heated at 85°–90° C. for 30 minutes; the virus was killed and while the physical appearance was unchanged, the immunising action was considerably reduced.

Action of phenol.—Phenol in a concentration of 0·5 per cent. has no appreciable effect on the virus and has been used as a preservative. Crude virus suspensions, to which 0·5 per cent. phenol has been added, have been kept for 5–6 weeks at 0° C. without any appreciable loss in infectivity for mice.

IMMUNISING ACTIVITY OF HEATED ELEMENTARY-BODY SUSPENSIONS

(*a*) *Mice.*—E.B.S. were heated at 57° C. for 30–45 minutes, phenolised (0·5 per cent.), and kept at 0° C. In almost every instance comparative tests were carried out with the heated E.B.S. and a sample of the virus suspension, from which the elementary bodies had been obtained, also phenolised (0·5 per cent.) and kept at 0° C.

Groups of 6–12 mice were selected and given two doses of 0·2 c.cm. at 7-day intervals, the first subcutaneously and the second intraperitoneally. The test dose of virus, varying in different experiments from approximately 2–10,000 minimal infecting doses, was given, 7 days after the second dose, by intranasal instillation under ether anæsthesia to the test animals and also to a group of uninoculated controls. All survivors were killed on the 4th or 5th day and examined for the presence of lung lesions.

The results of the various tests, some nine in all, have been similar and are combined in Table II.

TABLE II—IMMUNISATION OF MICE

Immunisation with—	Result.				
	D	++	+	+−	0
Live phenolised virus ..	1	3	7	12	24
E.B.S. 57° C.	4	5	8	15	16
Controls	24	17	16	6	2

A considerable degree of protection was obtained with both forms of vaccine. This was usually greater with the live virus suspension than with the heated E.B.S. The probable explanation is that the E.B.S. contained less virus than the crude suspension. In the preparation of an E.B.S. some virus is lost at different stages, and when the final volume is restored the concentration of virus is naturally decreased. It is probably most satisfactory to make up to only a half of the original volume, but in view of the small amount of material available for each test, the full volume of saline was usually added. The two readings are therefore not strictly comparable.

An attempt was made to confer protection by the intranasal administration of the heated E.B.S. but without any success. Two instillations were given under ether anæsthesia at an interval of 7 days; when the test virus was given after a further interval of 7 days extensive lesions were produced in all animals.

The protective value of the crude suspension heated at 57° C. was also examined. The results were similar to those recorded in an earlier paper (Fairbrother and Hoyle 1937a); protection was irregular and never great. There was also a definite change in the physical appearance of the suspension after heating.

The results indicate that elementary-body suspensions killed by heat at 57° C. are satisfactory immunising agents in mice.

(*b*) *Ferrets.*—It has been recorded by several workers that the artificial immunisation of normal ferrets does not induce sufficient protection to prevent infection following intranasal instillation of a potent virus. Nevertheless it is possible to reinforce the waning immunity of ferrets recovered from an attack some months previously and protect against subsequent infection.

A number of ferrets infected some 5–6 months previously had been kept in order to test whether their waning immunity could be reinforced by either the live phenolised virus suspension or the E.B.S. inactivated at 57° C.

The ferrets were arranged in three groups: one received the live virus, another inactivated E.B.S., and the third kept as controls. Two doses of the vaccines were given at 7-day intervals; the first was 0·5 c.cm. given subcutaneously and the second 0·7 c.cm. intraperitoneally. Seven days later 1 c.cm.

TABLE III—REINFORCEMENT OF WANING IMMUNITY OF FERRETS INFECTED 5–6 MONTHS PREVIOUSLY

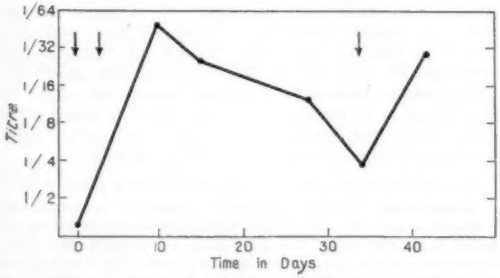
—	Immunisation with—	Result.
1	E.B.S. 57°C.	0; 0; 0.
2	Live phenolised virus.	0; 0; 0.
3	Convalescent controls.	++; ++; +; 0; 0.
4	Normal controls.	++; ++; ++.

Each symbol represents an animal. 0 = no sign of infection; + = definite infection but no lung lesion; ++ = definite infection with marked lung lesions.

of a potent virus suspension was introduced intranasally under ether anæsthesia into each animal, together with those of a fourth group of normal controls. The animals were closely examined, temperatures taken twice daily, and each was finally killed to determine whether lung lesions had developed. The results are given in Table III.

While this experiment was not absolutely conclusive, the results suggest that both types of vaccine gave protection. Unfortunately the immunity of the convalescent animals had not decreased sufficiently at the end of 5–6 months to render all the controls susceptible to reinfection. However, 3 out of the 5 convalescent controls developed infection, in 2 cases with definite lung lesions, whereas all the immunised ferrets remained unaffected by the test virus.

(*c*) *Rabbit.*—The rabbit is naturally resistant to infection with the influenza virus but it is a useful animal for determining the antigenic activity of



Antibody production in the rabbit following intravenous inoculations of heated E.B.S. (shown by arrows).

virus suspensions, as the natural resistance to infection with the virus is not associated with the presence of antibodies in the serum.

A normal rabbit was bled and then given 0·4 c.cm. of a heated elementary-body suspension intravenously; 3 days later a further intravenous injection of 0·85 c.cm. of the same suspension was made. At various intervals subsequently sample-bleedings were taken and after 36 days 0·6 c.cm. of a fresh heated E.B.S. was injected; 7 days later the animal was again bled. Quantitative neutralisation tests were carried out on the various samples; these were done individually shortly after collection and also together at the end of the experiment in order that the various readings should be strictly comparable (see Figure). Complement-fixation tests were unsatisfactory as the mouse antigen and normal rabbit serum fixed complement.

The inoculation of the heated E.B.S. gave rise to an appreciable antibody formation. There was a sharp rise in titre following the initial doses but this was not long maintained and after some 4 weeks it had declined considerably. Further immunisation again stimulated antibody production. This early decline in antibody titre was not unexpected, as Fairbrother and Martin (1938) have found that the sharp rise in antibodies following human infection is not maintained for any length of time. After 10–12 months the titres tend to return to the level given by normal individuals. The response of the rabbit was, however, further evidence that there was no impairment of the antigenicity of elementary bodies after heating at 57° C.

(*d*) *Man.*—As the animal experiments had proved satisfactory, the next step was to test the effect of

TABLE IV—ANTIBODY RESPONSE AFTER INTRAMUSCULAR INOCULATION OF HUMAN VOLUNTEERS

Subject.	Doses.	Titre of neutralising antibodies.		Increase.
		Before.	After.	
A	1	Nil.	Nil.	Nil.
B	1	1 : 1	1 : 1	Nil.
C	1	1 : 1	1 : 8	Eightfold.
D	2	1 : 1	1 : 3	Threefold.
E	2	1 : 2	1 : 8	Fourfold.
F	2	1 : 1	1 : 3	Threefold.
G	2	1 : 2	1 : 8	Fourfold.

the heated E.B.S. on human volunteers. Influenza has not been prevalent during the recent months and it was not possible to test the power of the vaccine to protect against spontaneous infection; antibody formation was therefore used to indicate the effect of the vaccines.

The sterility of the vaccine was tested by aerobic and anaerobic culture on blood agar, Robertson's meat medium, and Hartley's broth, and by intranasal and intracerebral inoculation of mice under ether anæsthesia. Negative results were obtained in all cases.

Seven volunteers were selected whose antibody titres were either nil or very low; 3 received one intramuscular dose only of 0·5–0·7 c.cm. and the others two intramuscular doses of 0·5 c.cm. In no instance was any general reaction observed; an extremely mild local reaction was reported on one occasion after a second inoculation of the suspension.

Blood was collected 11 or 12 days after the last dose; bleedings had also been taken before the injections. Quantitative neutralisations only were carried out, for the complement-fixation tests were irregular owing to the production in some instances of antibodies against mouse tissue. Comparative readings before and after the inoculations are given in Table IV.

The response of the individuals to immunisation was uneven. Two of the three persons receiving only one dose showed no stimulation of antibodies, but in all the others an increase in titre was obtained; this varied from three- to eight-fold.

These results are comparable with those obtained by other workers after the inoculation of formolised or living virus suspensions. It is important to note

that the amount of E.B.S. inoculated (0·5 c.cm.) was relatively small and that there was also a relatively low concentration of virus in the E.B.S. Therefore under the circumstances the antibody response was satisfactory.

DISCUSSION

Elementary-body suspensions, heated at 57° C., constitute a useful immunising agent against infection with the influenza virus. This is a matter of interest, since it has usually been accepted that the inactivation of viruses by heat destroyed their immunising power.

The results obtained with mice and ferrets suggest that any differences given by the heated and living vaccines were due mainly to variations in the concentration of virus in the suspensions, as no attempt had been made to standardise the virus content of the different preparations by titration in mice. As a general rule enough saline was added to the elementary bodies to restore the original volume. Therefore in all cases the E.B.S. contained less virus than the crude living suspensions, as virus is lost during the various processes in the preparation of the elementary-body suspensions.

An appreciable antibody response was also obtained by the inoculation of human volunteers and also a rabbit, which is naturally refractory to infection.

These results suggest that heated E.B.S. should constitute an admirable immunising agent for general application. The preparation does not involve any complicated technical procedures, it is non-infective, sterile, and can be conserved for some time at 0° C. The addition of 0·5 per cent. phenol moreover acts as an excellent preservative. Much but not all extraneous material is eliminated; it was found that centrifuging the final preparation at low speed for 5–10 minutes is useful in removing some of the residual foreign material. Local reactions, even of a mild nature, were uncommon; as with other vaccines prepared from mouse-lung lesions, some response to the mouse tissue occurred as evidenced by the appearance of antibodies against mouse tissue.

A further important point is that the concentration of virus can be adjusted at will by varying the quantity of saline added during the final preparation of the elementary-body suspension.

Immunity following an attack of influenza is only of short duration. As there is no reason to suppose that artificially induced immunity will be as great as that following infection, specific prophylaxis is not likely to be beneficial except under certain circumstances. It appears necessary either to give a series of injections during the late autumn—i.e., before influenza usually occurs—or to wait until an extensive epidemic is expected.

In all cases it is essential to emphasise that any immunity produced is only temporary; in some cases it is possible that the response will be so slight that protection against infection will not result. Also protection is only to be expected against epidemic influenza and not against the sporadic forms, many of which are vague infections of the upper respiratory tract.

In order to control the efficacy of the vaccines serological tests should be carried out before and after inoculation. Complement-fixation tests are most convenient for the examination of large batches of sera and they are useful in determining individuals who are likely to be susceptible to infection. Owing to the production of antibodies to mouse tissue in inoculated individuals, this test, in which infected mouse lung is the antigen, is unsatisfactory for testing the antibody response to the vaccines; neutralisation tests should therefore be carried out unless another form of antigen, such as infected egg-membrane, is available.

SUMMARY

Protection experiments in mice and ferrets and antibody production in man and the rabbit indicate that suspensions of elementary bodies killed by heat at 57° C. constitute a satisfactory immunising agent against epidemic influenza.

Dramatic results are not to be expected from the use of immunising agents to prevent influenza in human beings, but in certain circumstances these should be of definite value.

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RETICULOCYTE RESPONSE IN ALBINO RATS AFTER INJECTION OF GASTRIC JUICE

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Singer (1935) and Singer and Wechsler (1936) maintained that the injection of normal gastric juice or gastric juice from subjects not suffering from pernicious anæmia caused a reticulocyte response in rats within 3–5 days of the injection. He thought that the response must be due to the presence of Castle's intrinsic factor in the gastric juice, for boiled normal gastric juice or gastric juice from pernicious anæmia patients had no effect.

Rauschenberg (1935) confirmed Singer's results.

Kamerling (1935) obtained positive reticulocyte responses not only after the injection of normal gastric juice but also after the injection of pepsin and HCl together, while there was no response to the injection of neutralised gastric juice and that from pernicious anæmia patients.

Fleischhacker and Schlesinger (1935) came to the conclusion that the positive reticulocyte response cannot be due to Castle's intrinsic factor, for they frequently obtained a positive response after the injection of gastric juice from pernicious anæmia patients. The positive response was sometimes late and sometimes extremely high. They further reported a case of true polycythæmia whose gastric juice did not cause any reticulocyte response when injected into rats.

Klaperzak (1936), working with pig's gastric juice or the stomach contents of pig's embryos, stated that Singer's reaction in rats could not be due to the presence of Castle's factor, but depended very probably on the presence of proteins in the gastric juice. Gastric juice deproteinised by ammonium sulphate was ineffective, and the gastric juice which

was partly deproteinised by boiling for three minutes caused a positive response only in a small number of experiments, although Castle's intrinsic factor was not destroyed by this preliminary treatment.

Crosetti, Bajardi, and Margulius (1937) almost always obtained a positive reticulocyte response on the injection of gastric juice from subjects not suffering from pernicious anæmia and sometimes on the injection of gastric juice from patients suffering from pernicious anæmia. They divided the pernicious anæmia patients into three groups: (1) Untreated cases during decompensation. The reticulocyte response is almost always negative. (2) Cases during liver treatment. The response is sometimes positive, sometimes negative. (3) Compensated cases which have been without liver treatment for some time. The response is sometimes positive.

Rambert (1937) repeated Singer's experiments and confirmed his results. But the details of his experiments are not at all conclusive. The difference between his normal reticulocyte count and a positive response is too small and almost within the normal variations from day to day. One of Rambert's cases of pernicious anæmia gave a positive response, but as the injection of the heated gastric juice from the same patient gave the same response, the experiment is rejected as unsuitable. I propose to show that there is not much difference between the response to untreated and heated gastric juice. Only one rat was used for each of Rambert's 5 cases of pernicious anæmia and the reticulocytes were counted every other day, but only up to the sixth day after injection. This experimental procedure is too lax to produce reliable results.

The implication of Singer's work is twofold—namely, that the response is due to the presence of Castle's intrinsic factor, and that the absence of a response may be considered diagnostic of pernicious anæmia. Although subsequent workers have not confirmed Singer's work completely, the results are so important that it seemed desirable to repeat his experiments. The results reported in this paper indicate that the response cannot be due to Castle's factor and the test is of no diagnostic value in pernicious anæmia.

METHOD

The animals used have been albino rats weighing 150–200 g. Both sexes were used, and the animals were kept in separate cages on a diet consisting of bread and milk.

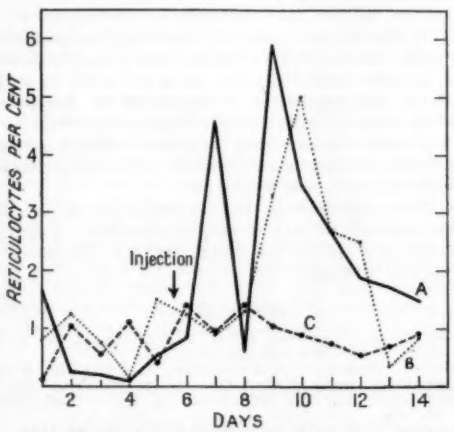

FIG. 1.—Reticulocyte response to subcutaneous injection of gastric juice obtained from a patient suffering from hypochromic anæmia and gastritis (no free HCl present after the injection of histamine; Table I, Case 3). Curve A shows the response to 4 c.cm. of gastric juice plus 1 c.cm. of saline (Rat 7); Curve B the response to 3·5 c.cm. of heated gastric juice plus 1·5 c.cm. of saline (Rat 18); and Curve C the response to 5 c.cm. of saline (Rat 16).

The blood was obtained daily from the tail veins by a slight cut with a razor blade. The blood was sucked up in a blood-counting pipette, mixed on a paraffin slide with an equal amount of brilliant cresyl blue solution (1 part saturated alcoholic solution of brilliant cresyl blue to 5 parts 1 per cent. sodium citrate in normal saline), and incubated at 37° C. for fifteen minutes. After incubation smears were made and counterstained with Jenner's stain. In normal periods 1000 red blood-cells were counted, but when the percentage of the reticulocytes was above the normal level 2000 were counted.

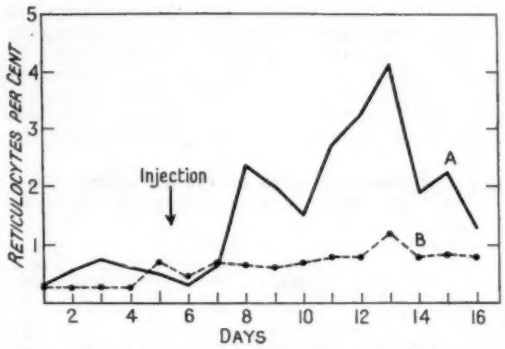

FIG. 2.—Reticulocyte response to subcutaneous injection of gastric juice obtained from a patient suffering from pernicious anæmia. The patient had never been treated for pernicious anæmia and there was no free HCl present after the injection of histamine (Table II, Case 4). Curve A shows the response to 5 c.cm. of gastric juice plus 0·5 c.cm. of saline (Rat 40), and Curve B the response to 5·5 c.cm. of saline (Rat 42).

The reticulocyte count in normal rats varies from nil to about 1·5 per cent. and is not altered by bleeding in the above manner over a long period (see control rats in Figs. 1 and 2). Rats which showed a large variation in their reticulocyte count were not used. Such variations were encountered only in rats which were in abnormal health.

The gastric juice was obtained by aspirating the stomach through a fine stomach-tube after 12 hours' fast. Both the resting juice and the secretion following the injection of 0·05 mg. histamine were used after filtration and neutralisation to litmus paper, if necessary.

The gastric juice was injected subcutaneously into the back of the rat in amounts varying from 2 to 5 c.cm., always made up to 5 c.cm. with sterile normal saline. In every batch of rats used for an experiment, one control rat was injected with normal saline only. The animals were injected after a control period of 5–8 days.

RESULTS

Specimen curves of the daily reticulocyte count are shown in Figs. 1 and 2.

The reticulocyte response of the rats to gastric juice from subjects not suffering from pernicious anæmia is tabulated in Table I. The average reticulocyte count was around 1 per cent. before injection. After injection 3–5 days elapsed before the reticulocytes began to rise. The reticulocyte peak was usually between 2 and 5 per cent. and remained high for a day or two, sometimes showing a second peak. No control rat in any of the batches showed a reticulocyte rise during the same period, so that a positive result could not be due to the daily bleeding. The response to the injection of gastric juice from normal subjects did not differ from that

following the injection of gastric juice from patients not suffering from pernicious anæmia.

The figures in Table I do not suggest that the height of the reticulocyte rise is related to the amount of gastric juice injected (see, for example, Table I: rats Nos. 6 and 7; 5, 15, 7).

Singer maintains that he never got a reticulocyte response when he destroyed Castle's intrinsic factor in the gastric juice. In the experiments shown in part 2 of Table I, the intrinsic factor was destroyed either by heating the gastric juice for 30–40 minutes at 70°–80° C. or boiling it for 10 minutes. However, most of the animals responded very well to the injection, although the maximum rise was reached about a day later on the average.

Since the heat treatment used is known to destroy Castle's intrinsic factor (Castle, Townsend, and Heath 1930) the rise in the reticulocyte count cannot be due to the presence of Castle's intrinsic factor in the gastric juice.

Table II demonstrates the results obtained after the injection of gastric juice from four patients suffering from pernicious anæmia. The results are very similar to those obtained with normal gastric juice except that the peak of the rise usually occurred a day or two later. Moreover the response of the two rats which were injected with heated gastric juice from a pernicious anæmia patient show a good reticulocyte response.

TABLE I—RETICULOCYTE RESPONSE TO GASTRIC JUICE FROM SUBJECTS NOT SUFFERING FROM PERNICIOUS ANÆMIA

Case No.	Rat No.	Pre-injection period. Average per cent.	Pre-injection period. Maximum per cent. reached.	Post-injection period. Maximum per cent.	Post-injection period. Time in days after injection.	Gastric juice injected. Amount in c.cm.	Gastric juice injected. Cases.	No. of rats used.
UNTREATED GASTRIC JUICE								
1	6	0·53	1·60	3·45	5	3·5	Normal (J. F. B.).	2
	7	0·38	1·10	4·70	4	2·0		
2	9	0·20	0·50	2·00	4	5·0	Normal (G. P.).	3
	10	0·89	1·20	3·30	4	4·0		
	11	0·64	1·50	2·75	3	3·0		
3	5	0·85	1·40	2·90	4	5·0	Hypochromic anæmia, gastritis, free HCl 0.	3
	15	0·80	1·30	2·60	5	4·0		
	7	0·55	1·65	5·90	4	4·0		
4	21	1·04	1·70	3·25	4	3·0	Diabetes, free HCl 0.	2
	18	0·61	0·85	2·75 / 2·05	1 / 7	2·0		
HEATED GASTRIC JUICE								
2	12	1·06	1·25	1·75	3 / 5	3·0	Normal* (G. P.).	2
	14	0·30	1·10	1·70	3	5·0		
3	17	0·53	0·85	2·35	6	3·0	Hypochromic† as above.	2
	18	0·89	1·50	5·00	5	3·5		
4	15	0·88	1·25	3·70	5	1·5	Diabetes‡ as above.	2
	20	(1·73)	(2·75)	(3·75)	(6)	(2·5)		(1)
	19	(1·91)	(3·05)	(5·05)	(4)	(3·0)		

* Heated for 30 minutes at 70°–80° C.
† " " 40 " " 80° C.
‡ Boiled " 10 "

TABLE II—RETICULOCYTE RESPONSE TO GASTRIC JUICE FROM CASES SUFFERING FROM PERNICIOUS ANÆMIA

UNTREATED GASTRIC JUICE								
1	12	0·67	1·40	2·85	6	2·0	Pernicious anæmia after good response to liver treatment. Free HCl 0.	3
	13a	0·70	1·40	2·75	6	3·0		
	14	0·33	1·05	4·60	5	5·0		
2	26	0·54	0·90	2·75 / 2·70	1 / 7	3·0	Pernicious anæmia, untreated. Free HCl 0.	2
	27	0·41	0·95	3·30	8	4·0		
3	32	0·18	0·40	2·15	8	3·5	Pernicious anæmia, beginning subacute combined degeneration, slight treatment. Free HCl 0.	4
	34	0·35	0·75	3·20 / 3·45	7 / 8	3·5		
	35	0·41	1·40	2·90	7	2·0		
	36	0·21	0·45	2·70	7	2·5		
4	37	0·35	0·45	2·65	9	5·5	Pernicious anæmia, untreated. Free HCl 0.	5
	38	0·52	1·20	3·10	7	5·5		
	39	0·34	0·90	3·50	8	5·5		
	40	0·54	0·75	2·35 / 4·10	3 / 8	5·5		
	41	0·47	1·00	2·50 / 3·45	5 / 8	5·5		
HEATED GASTRIC JUICE								
1	10	0·98	1·30	2·80	6	2·0	Pernicious anæmia as above.*	2
	11	0·69	1·55	2·90	6	3·5		

* Heated for 30 minutes at 80° C.

CONCLUSIONS

Although the number of experiments is very small, the results justify the conclusion that the rise of the reticulocyte count after the injection of gastric juice is not due to Castle's intrinsic factor. According to the data given by Castle, his intrinsic factor should be completely destroyed by the heat treatment used in these experiments, and yet there is almost no difference between the results obtained with untreated gastric juice and those obtained with heated gastric juice.

Even if the positive response is not due to Castle's intrinsic factor, there is still the important clinical possibility that a negative result might be diagnostic of Addisonian pernicious anæmia. The number of cases tested in these experiments is small, but in all of them a positive result was obtained. Singer insists that the response should only be regarded as positive if the peak is reached within 5 days. By this criterion only three rats gave a positive response to the injection of gastric juice from pernicious anæmia. But the difference in the curves obtained from the gastric juice of normal cases and of pernicious anæmia cases is so slight and so inconstant that, whatever the meaning, it could certainly not be relied upon as a diagnostic test.

SUMMARY

1. The albino rat responds to the injection of gastric juice from subjects not suffering from pernicious anæmia with a rise of reticulocytes within 3 to 5 days.

2. Gastric juice from the same subjects, in which Castle's intrinsic factor is destroyed by heating or boiling, causes a similar reticulocyte response.

3. Gastric juice from patients suffering from pernicious anæmia causes a similar but usually delayed reticulocyte response in the rats.

4. The occurrence or non-occurrence of a reticulocyte response in rats receiving injections of human gastric juice is of no value in the diagnosis of pernicious anæmia.

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CLINICAL AND LABORATORY NOTES

A COLOUR REACTION FOR BENZEDRINE

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In some subjects the effects of benzedrine appear to be transient, lasting only a few hours, while in others they may be felt for more than a day. In order to obtain more information as to the duration of the action of benzedrine the rate of excretion in the urine has been measured. Using the micro-method described below it was found that with doses of 20 mg. benzedrine sulphate in some subjects only 30–50 per cent. is excreted in the urine in 24 hours and benzedrine may still be detected in the urine 40 hours after administration.

Benzedrine gives a yellow colour with a number of nitrophenols, including picric acid, and this may be used as a convenient method of estimation for amounts down to 0·001 mg. per c.cm.

To 60 c.cm. urine in a 250 c.cm. separating funnel is added 6 c.cm. petroleum ether and 4 c.cm. 2N caustic soda solution. The mixture is shaken three minutes by a rotating motion to prevent froth formation, allowed to stand two minutes, and the aqueous layer run off. The petroleum ether layer is centrifuged five minutes, cleared by stirring with a glass rod, and centrifuged for a further two minutes. 3 c.cm. of the petroleum ether solution is measured in a dry pipette or 10 c.cm. measuring cylinder and washed with 3 c.cm. chloroform into a dry test-tube. 0·6 c.cm. of a solution containing 1 per cent. picric acid in toluene is now added. The tube is allowed to stand well corked for 12 hours during which time the picrates of other basic substances from the urine separate out; the clear yellow solution is then compared with a series of standards prepared in a similar manner from solutions containing 0, 1, 2, 5, 10, and 20 γ benzedrine per c.cm. For making the standards pure liquid benzedrine was used and the solution titrated with standard N/5 acid, but for many purposes it is sufficiently accurate to use a solution obtained by heating a 10 mg. tablet of benzedrine sulphate with 7·35 c.cm. water (the starch with which the tablets are made up does not interfere). The resulting solution contains 1 mg. base per c.cm.

Normal urines often contain small amounts of amines which give a slight blank value corresponding to about 0·5–1·0 γ benzedrine per c.cm. The value of the blank must therefore be determined and subtracted from the values obtained after giving benzedrine. Small amounts of indole in the urine do not interfere with the estimation, but the formation of amines by bacterial decomposition must be avoided by adding a few drops of toluene and using the urines as fresh as possible. Traces of moisture or alkali in the tubes interfere with the estimation and it is essential that the tubes should be well cleaned with cleaning fluid and dried. If four separating funnels are used a large number of estimations may be made in a comparatively short time.

THE NOSTRIL IN SECONDARY HARE-LIP

By Graham Humby, M.R.C.S. Eng.

The following operation is offered as an alternative to existing methods for the correction of the flattened nostril in secondary hare-lip. I believe that it gives a more positive result and enables one to over-correct the deformity in order to allow for the subsequent contraction of scar tissue.

The increased width of the base of the nostril is corrected in the ordinary way by resection of tissue and undermining. It is with the flattened portion on one side of the tip that we are concerned, and the object of the operation is to fold a portion of the alar cartilage of the normal side over to the flattened side after freeing the flattened cartilage from the skin above it; in this way the bent cartilage, by its natural elasticity, supports the flattened nostril.

The deformity.

Desideratum.

The knife is inserted at the lower edge of the flattened cartilage, and the freeing is done parallel to the superficial surface of it—i.e., between the cartilage and the skin. On the normal side, the lateral portion of the alar cartilage is resected submucously and folded over into the space which has been created on the flattened side between the cartilage and skin. No stitches are necessary.

Submucous resection.

Cartilage folded over.

Should it be feared that the normal nostril will collapse when bereft of its cartilage, a narrow margin of its lower border may be left in situ and not swung over with the rest to the other side; but the normal nostril tip is usually unduly prominent and a slight collapse does not detract from the final result. The manipulation of the alar cartilages does not involve any interference with the nasal septum.

Only a few cases have been submitted to this procedure, but the results obtained justify this communication.

IDIOSYNCRASY TO ACRIFLAVINE

By W. A. Young, B.M.Oxon., B.Sc.Lond., D.T.M.&H.
SENIOR MEDICAL OFFICER, SEWA HADJI HOSPITAL, DAR-ES-SALAAM, TANGANYIKA TERRITORY; AND

F. Hawking, D.M. Oxon., D.T.M.
SENIOR FELLOW IN TROPICAL MEDICINE, MEDICAL RESEARCH COUNCIL

The purpose of this communication is briefly to record a case of skin sensitivity to acriflavine.

On March 23rd, 1938, an Indian aged 38 was admitted to the Sewa Hadji Hospital for fever, vomiting, and bronchitis. He also had a chronic sinus in the left upper arm which had followed injury to the arm two years previously. The Wassermann reaction was negative. A few days after admission the sinus

began to discharge a thin purulent fluid. On March 29th a plug of gauze soaked in 1/2000 aqueous solution of acriflavine was placed in the sinus, and a pad of similar dressing was placed round the arm. On April 1st it was found that the whole area of skin under this dressing was swollen, erythematous, and sore. It emitted numerous drops of fluid, mostly clear but some whitish and presumably purulent. The affected area formed a band about 3 in. wide round the upper arm and its boundaries accurately corresponded to those of the dressing. The patient stated that the same rash had appeared on many other occasions whenever this "yellow medicine" had been applied in outside dispensaries. The area was dressed with dry boric lint and later with ung. hyd. ammon. dil. spread on gauze. By April 9th the sinus was clean and granulating; the area of the rash showed many small red granulating areas about ¼ in. across, previously the sites of blisters.

Meanwhile a test had been made to confirm that this condition was indeed due to the dressing. A small pad of gauze was soaked in acriflavine 1/2000 and affixed to the patient's forearm by strapping. Next day the pad was removed, and no obvious lesion was found; but on the following day erythema and inflammation began to appear, reaching a maximum on the third day after the first application of the pad. There was considerable itching but no pain. On the seventh day the skin was still red, thickened, rough, and itching.

It has not been possible to search through the literature dealing with acriflavine, but no reference to any other case of sensitivity to this compound is known to us. Such sensitivity must be very rare. The dressing applied above is one of the commonest stock dressings in use at a large tropical hospital which treats a very great number of infected wounds and ulcers among a daily out-patient attendance of 500–600; and no case of sensitivity to it has previously been observed. It is interesting to note that there was a latent period of two or three days between the first application of the dressing and the beginning of symptoms. The patient's statement that the same rash had occurred at other (private) dispensaries suggests that the reaction was probably not confined to any one particular brand of acriflavine.

We are indebted to the deputy-director of medical services for permission to publish this case.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF MEDICINE

At a meeting of this section held on May 24th, with Dr. H. L. TIDY, the president, in the chair, a paper on

Dietetic Treatment of Diabetes Mellitus

with special reference to high blood pressure was read by Dr. DENNIS EMBLETON. He described a standard diet containing about 150 g. of carbohydrate, about 120 g. of protein, and a variable amount of fat. The carbohydrate consisted of bread or biscuits, accurately measured, and fruit; the protein was a minimum allowance and might be exceeded; 1½ pints of milk was included later in the treatment, and the fat intake at all times was unrestricted. Sugar and alcohol were completely excluded and two motions of the bowels every day were insisted upon. This standard diet was prescribed for periods of 3–5 days, alternating with periods of 1–3 days on which nothing at all was to be taken except fruit, fruit juice, and water, yielding 180 to 240 g. of carbohydrate daily. This régime, usually without any insulin, was used in treating obese patients and diabetics of the relatively mild type, over forty years of age, whose sugar-tolerance curves even when high showed a fall towards normal within 2½ hours. Many such diabetics were also obese, and no sharp distinction between obese diabetics and obese non-diabetics could be made on the basis of sugar-tolerance curves, which in a series of 66 obese males showed every gradation from normal to frankly diabetic. In addition to the dietetic régime Dr. Embleton considered the elimination of focal sepsis very important. He showed many coloured charts displaying the effect of this treatment on individual cases. During two or three weeks' treatment acetonuria would disappear and glycosuria would diminish or disappear; the periods on fruit alone were specially effective in abolishing glycosuria. At the same time many records showed a steady fall of systolic blood pressure, from levels of 180 mm. Hg and over, down to within normal limits. Emotional upsets were prone to cause a temporary return of glycosuria. Reduction of weight was recorded in many cases and in some patients with impaired circulation to the legs warmth and sensation returned to the feet. The régime was suitable even for those undertaking the physical strain of high-class athletics.

Dr. H. P. HIMSWORTH considered Dr. Embleton's results an important contribution to the study of the pre-diabetic state. He recalled F. G. Young's work on the effect of injecting pituitary glycotropic factor into dogs, which became fat and developed glycosuria; these changes were reversible up to three weeks, but if the injections were continued longer a permanent diabetes resulted. He pointed out that these effects were obtainable in carnivora fed on flesh, not in carnivora fed on a vegetarian diet nor in herbivora. He suggested that the diet described by Dr. Embleton might exert a braking effect on the patients' pituitaries.

Dr. E. P. POULTON said that Dr. Embleton's diets were reminiscent of the diabetic régimes of the pre-insulin period, with their fast days; he asked which was important, the high protein or the limited calorie intake.

The PRESIDENT quoted Kipling to the effect that—

> There are nine and sixty ways
> Of construing tribal lays
> And every single one of them is right.

He regarded Dr. Embleton's diets as ideal for a fat man, who could eat his fill—for fat men always had good appetites—for five days a week and eat fruit in compensation on the other two. At the same time he accepted some of Dr. Embleton's cases as true diabetics.

Dr. EMBLETON, replying, said that his diets when analysed were not low in total calorie intake. For obese patients he used the standard diet only, for diabetics the standard diet and the fruit days. All the diabetic cases whom he quoted had been treated with insulin by leading consultants in diabetes before they came to him.

The Chronic Pneumonias

was the title of a paper by Dr. J. G. SCADDING. He accepted the conventional use of the term "pneumonia" to designate an inflammatory process in the lung predominantly characterised by exudation

into the pulmonary alveoli. In chronic pneumonia this might be followed by organisation and fibrosis or by suppuration, and at any stage resolution might take place. Although Laennec and others in the nineteenth century had described this process and discussed its clinical aspects, it found no place in modern text-books of medicine except in the delayed resolution of acute lobar pneumonia. In 1936 Dr. Scadding had described three cases of "*chronic diffuse broncho-pneumonia*," in which small focal pneumonic lesions occurred widely scattered through the lungs, and showed in different places early consolidation, resolving consolidation, organisation, and suppuration. The illnesses had run a chronic course lasting from 3½ months to 2 years, ending fatally. In many respects, both clinically and radiologically, they had simulated chronic pulmonary tuberculosis. To that group he now wished to add three other groups of chronic pneumonias.

Chronic circumscribed non-suppurative pneumonia was a term that described the usual type of delayed resolution of acute pneumonia, which had been shown radiologically to persist for up to 85 days after the acute onset. The consolidation must be supposed to persist during that time in a state of suspended activity, for complete clearing could follow without fibrosis, and without suppuration. In the same group belonged other cases which began insidiously or with only mild initial symptoms. He described an example in a man of 56, in which consolidation spreading out from the right hilar region developed insidiously, persisted for several weeks, and completely cleared; sputum was scanty throughout and contained no tubercle bacilli; the X ray appearances had strongly suggested bronchial carcinoma.

Chronic suppurative pneumonia without gross abscess formation was a condition in which consolidation was followed by both organisation and suppuration, the latter dominating the clinical picture but occurring in scattered small foci without coalescence into abscess cavities. An example was described in a man of 38, in whom the pneumonia began at the right base and extended into the right middle zone; it lasted at least three months, with irregular fever and profuse purulent sputum which was not malodorous; clubbing of the fingers developed during its course; recovery followed treatment by postural drainage, and left only some residual basal fibrosis.

Chronic suppurative pneumonia with abscess formation was a commoner condition. In an example described, the history was similar to that of the previous case, but the duration was six months and at one stage a small cavity in the centre of the consolidated area was revealed by X rays. The characteristics of the group were irregular consolidation, incidental breaking down of small areas into abscesses, and a spreading tendency with the occurrence of fresh areas of consolidation in hitherto unaffected parts of the lungs. Dr. Scadding held that this process accounts for those cases of lung abscess described as of apparently "primary" origin (8 per cent. to 38 per cent. in various published series of lung abscess); the chronic pneumonic changes found post mortem round such abscesses should be regarded as the primary process, not as secondary to the suppuration. Laennec had described and interpreted these changes in that way.

In the bacteriological examination of sputa of seven cases of chronic suppurative pneumonia, Dr. Scadding had found no clue to its ætiology; even Vincent's organisms seemed to be secondary invaders. In treatment he had obtained no lasting benefit from arsenical preparations or sulphanilamide; postural drainage according to Nelson's principles was of value; large abscesses not draining into a bronchus had to be treated surgically, but where a diffuse suppurative pneumonia of any extent coexisted the improvement following surgical drainage was often limited.

Dr. PHILIP ELLMAN emphasised the importance of some of these forms of chronic pneumonia because of their resemblance to pulmonary tuberculosis, which, incidentally, might also heal by resolution. It was a great misfortune for a non-tuberculous patient to be condemned to a diagnosis of pulmonary tuberculosis.

Dr. SCADDING, in reply, agreed that some cases of his chronic diffuse (focal) broncho-pneumonia could be distinguished from tuberculosis only by long watching and repeated sputum examination.

Pulmonary Complications after Operation

Some aspects of post-operative pulmonary complications were discussed by Dr. N. C. OSWALD, who said that accurate diagnosis of these conditions had become possible only in the last ten years, with the help of radiography. At Charing Cross Hospital he had examined 710 post-operative cases, using X rays, and 11 per cent. of these had shown pulmonary complications. The figures were higher (about 30 per cent.) for upper abdominal operations than for lower abdominal operations (about 5 per cent. for appendicectomies and hernias), and highest for perforated peptic ulcers (about 50 per cent.). There were two main types of complication, bronchitis with or without broncho-pneumonia, and atelectasis. Both appeared in the first four days, and they could be differentiated sometimes by signs and symptoms, sometimes only by radiography. Bronchitis alone caused fever, cough, sputum, and physical signs in the chest, with no abnormal shadows in the skiagram; it was commoner in chronic bronchitics and in those operated on during acute upper respiratory infections. Bronchitis might proceed to broncho-pneumonia, with signs of consolidation and shadows in the lower zones. In other cases broncho-pneumonia followed atelectasis. In others again some broncho-pneumonia was found post mortem in patients whose general condition had been too poor to enable them to survive the operation performed; in these the pulmonary complication was not to be regarded as the cause of death. The second group of complications, those with atelectasis, constituted half of Dr. Oswald's cases. The collapse was lobular or lobar; true massive collapse, involving two or more lobes, had not occurred in his series. Atelectasis was accompanied by fever and cough, with the production of a drachm or two of sputum, for a few days.

On a first analysis complications seemed to have occurred twice as frequently in patients over 40 years old as in those under 40. In the older group, however, operations in general were more extensive. When large operations were taken separately, the incidence of lung complications above and below 40 was the same; but when only small operations were considered, the complications were twice as common in patients over 40. Death had occurred in 36 cases: in 4 (aged 48–66) from lung complications directly, in 9 partly from lung complications, in 4 from pulmonary embolism, and in 19 from causes not connected with the lungs. In 263 deaths occurring at Guy's Hospital after major abdominal operations the figure for pulmonary embolism had been similar—namely, 10 per cent.

Pulmonary complications showed the same incidence after operations under spinal anæsthesia as after those

under general anæsthesia, the types of operation in the two groups being similar. There was also little indication of any seasonal influence on the incidence of complications. Dr. Oswald showed a number of slides illustrating the radiographic appearances in his cases.

In the discussion that followed several speakers raised the question of treatment; the PRESIDENT drew attention to the well-known rise in the platelet count 10–14 days after operation and its possible relation to pulmonary embolism.

Dr. OSWALD, replying, estimated that rather less than half the cases of post-operative atelectasis of the lung might be expected to recover without any treatment; treated by posture, four out of five would be expected to avoid pneumonia. He had no experience of bronchoscopic treatment, and he saw no advantage in carbon dioxide inhalations, which tended to force sputum further down the bronchi. He agreed that it was of great importance that a patient under the influence of morphia should be made to cough properly.

SECTION OF EPIDEMIOLOGY

AT a meeting of this section, Sir ARTHUR MACNALTY presiding, Dr. J. ALISON GLOVER read a paper on the incidence of

Tonsillectomy in School-children

He pointed out that the incidence of operations upon the tonsil in this country remained low until after the beginning of the twentieth century. About 1902–03 a rapid rise began. There was a partial lull during the war years, after which the rise accelerated sharply, reaching a peak in 1931. There was then a sharp fall. In 1936 a second rising curve began. Dr. Glover noted that the incidence is higher upon boys than upon girls, but the age-distribution is somewhat older in girls. The highest age-incidence is upon the period 5 to 7 years, the peak being usually in the sixth year. Dr. Glover's plea was for more attention to sex and especially to age-grouping in considering the necessity for operation, and in assessing its results. The recent work of I. M. Epstein and others had suggested that the present age-distribution is too young for the best results to be got. The high incidence between 5–7 years was probably due to operations on tonsils for enlargements which are either (1) physiological, associated with the great changes in development and in the oral cavity which take place at this critical period; or (2) immunological, in response to the unaccustomed herd infections of the new environment of school, or to the sepsis sometimes resulting from the decay of the primary dentition. A study of the geographical distribution in elementary school-children disclosed no correlation between the rate of incidence and any impersonal factor, such as overcrowding, poverty, bad housing, or climate. Incidence was not correlated with the general efficiency of the school medical and dental services of the area. In fact it defied any explanation, save that of variations of medical opinion on the indications for operation. Large and in some cases drastic reductions in the numbers of operations performed in elementary school-children in certain areas had had no unsatisfactory results. Puzzling as was the geographical distribution the social distribution was yet more of an enigma. Tonsillectomy was at least three times as common in the well-to-do classes. The more fortunate the child in all other circumstances, and the better the opportunities for careful nurture, so much the more was he liable to tonsillectomy. In the public schools the picked athletes among the boys were tonsillectomised in exactly the same proportion as the other boys in the schools. Mr. T. B. Layton had pointed out in 1931 that the mortality from the operation was larger than was generally appreciated, and the Registrar-General's figures for the 5-year period 1931–35 showed that on a conservative estimate 85 children under 15 died each year from tonsillectomy. Though the removal of tonsils was always something of a gamble, in certain cases it had brilliant results. Unfortunately the recollection of these dramatic successes had often led to operation without adequate cause, or sufficient regard to the possibility of enlargement being temporary, physiological, or immunological. The variations in practice and the other anomalies to which Dr. Glover had drawn attention suggested that the probability that the tonsil served some useful purpose, its tendency to spontaneous involution, and the success of non-operative methods of treatment were often overlooked in a too hasty resort to symptomatic treatment. He concluded that the facts of incidence of tonsillectomies supported the opinion, expressed on other grounds by the schools epidemic committee of the Medical Research Council, that "it is a little difficult to believe that among the mass of tonsillectomies performed to-day all subjects for operation are selected with true discrimination, and one cannot avoid the conclusion that there is a tendency for the operation to be performed as a routine prophylactic ritual for no particular reason and with no particular result."

DISCUSSION

In the subsequent discussion no opposition was offered to the view that mass tonsillectomy was a useless and might be a dangerous prophylactic measure, although in cases carefully selected for operation, after a reasonable period of observation, its results were excellent.

Dr. LEWIS GLOVER said he had observed that if children in whom the operation was refused were subsequently examined it would be found that the great majority had passed into the group in which operation was not necessary.

Dr. W. H. W. ATTLEE agreed that the incidence of tonsillectomy had gone up. In the school in which he was interested the proportion of new entrants who had been tonsillectomised had been 20 per cent. in 1908–10 as against 80 per cent. at the present time. Perhaps as the result of this, the type of throat infection encountered had altered. Follicular tonsillitis was now rare but in its place a generalised pharyngitis was seen, occasionally with pharyngeal abscess.

Mr. T. B. LAYTON remarked that he had first adopted a conservative attitude in 1911 and that experience had strengthened, and not weakened, this attitude. He refused to admit that the function of the tonsil was unknown: it was the largest and most important of the protective subepithelial lymphatic glands. He outlined the precautions which should be taken in selecting cases for operation. The time taken to give an opinion on the advisability of operation should never be less than the time taken to perform the operation—and he was a slow operator. Practically never should operation be decided upon at the first visit. He had given up operating during the winter and he would never operate at the time of a measles epidemic on a child who had not had measles. Harmful results from unnecessary tonsillectomy were greater in poor children than in those of the well-to-do. Tonsillectomy never cured recurrent colds and the case of otitis media which was difficult

to cure was that in the tonsillectomised child. Tonsillectomy in adults was an entirely different problem and should never be discussed on the same basis as tonsillectomy in children.

Mr. E. D. D. DAVIS also emphasised the occasional severity of non-tuberculous adenitis in the tonsillectomised child.

Dr. PERCY STOCKS admired Dr. Glover's moderation of language in putting up what he thought was an overwhelming case. The best that could be said was that the position was even worse in the United States. Apparently the figure in England and Wales for the whole population was about 25 per cent., whereas a recent American inquiry estimated that 54 per cent. of an unselected sample of the population had been tonsillectomised. He thought that the tendency towards tonsillectomy would be difficult to reverse.

Dr. R. P. GARROW agreed about this, as he thought that a great many of the "strange facts of incidence" brought out by Dr. Glover could be explained by the anxiety of parents—and particularly of mothers—for their children. This would explain the social incidence and even, perhaps, the sex-incidence.

REVIEWS AND NOTICES OF BOOKS

Diseases of Infancy and Childhood

Second edition. By WILFRID SHELDON, M.D., F.R.C.P. Lond., Physician for Diseases of Children, King's College Hospital; Physician to Outpatients, Hospital for Sick Children, Great Ormond-street; Consulting Pædiatrician to the L.C.C. London: J. and A. Churchill. 1938. Pp. 739. 21*s*.

Sick Children: Diagnosis and Treatment

Third edition. By DONALD PATERSON, B.A. Manitoba, M.D. Edin., F.R.C.P. Lond., Physician, Hospital for Sick Children, Great Ormond-street; Physician for Diseases of Children, Westminster Hospital. London: Cassell and Co. 1938. Pp. 604. 12*s*. 6*d*.

BOTH these text-books of children's diseases covering much the same ground have not only justified their existence but have proved their popularity. Dr. Sheldon's book was first published in 1936, and the second edition of Dr. Paterson's only last year. One does not therefore look for any very profound changes in either manner or matter. Both authors now include references to the sulphanilamide group of drugs and to the salts of mandelic acid. Dr. Paterson has further revised the section on the anæmias, and written a new section on acute and chronic antritis. Dr. Sheldon has recast the section on intrathoracic tuberculosis, and includes an interesting discussion on hypersensitivity to tuberculin. We would remind him that oxygen tents which he couples with mandelic acid as therapeutic agents of proved value in 1938, but "still on trial" and therefore not included in 1936, have been in general use in American children's hospitals for at least ten years. The reproduction of many of the radiograms in Dr. Sheldon's book is much improved by their transfer to special plates. In future editions he should adopt a consistent style for the references given at the foot of the pages. When one considers that the authors have shared the privilege of a long association with the same great children's hospital and the teaching of Still, Hutchison, Poynton, and Thursfield, it is refreshing to see what an individual and distinctive approach each brings to his subject.

Lippincott's Quick Reference Book for Medicine and Surgery

Tenth edition. By GEORGE E. REHBERGER, A.B., M.D. London: J. B. Lippincott Company. 1937. Pp. 1354. 65*s*.

THE appearance of a new edition of this book is an event of importance to many doctors, especially to those who, working in remote places, are cast much upon their own resources. This new edition follows the same general plan as previous ones, but the whole work has been revised. Much new material has been added, including an article listing the recent advances in endocrinology and notes on the Prontosil group of drugs and protamine zinc insulin. In a book of such wide scope notes on treatment must necessarily be short and not all Dr. Rehberger's therapeutic suggestions will meet with general approval. The advocacy, for example, of mechanical restraint as a means of treating masturbation savours of the last century, and the treatment of primary amenorrhœa by intensive coitus sounds a heroic remedy hardly applicable in a civilised world. The vast number of synonyms used in medicine makes for a good deal of tiresome cross-reference for which the author cannot be blamed. The reader however, has cause to complain if, when he looks up "vitamins," he is referred to the note on "food-values"; in these circumstances the epithet "quick reference" loses its significance. On the other hand, no praise is too high for the zeal and thoroughness with which, apparently single-handed, Dr. Rehberger has tackled his immense task. The book is profusely illustrated with plates, charts, and diagrams. A pharmacological index and a table of equivalents of metric and apothecaries' weights and measures are appended.

Orthodiascopy

By CHESTER M. KURTZ, M.D., F.A.C.P., Assistant Professor of Medicine, University of Wisconsin; Cardiologist to the State of Wisconsin General Hospital. London: Macmillan and Co. 1937. Pp. 247. 15*s*.

ORTHODIASCOPY is a radiological method of determining the exact size and outline of the heart which is popular in America and Germany. The author finds that it has several advantages over the simple teleradiographic pictures in ordinary use in this country. The book is of interest to the cardiologist as well as to the radiologist and contains case-histories and some interesting statistics on deviation from the normal. The technique is described at length and the full examination includes an orthodiagraphic tracing of the silhouette of the heart with careful measurements, an ophthalmoscopic examination, and an electrocardiogram. The actual tracing is fairly simple, but it is laborious, as it has to be carried out in each of four positions—anterior, posterior, right oblique, and left oblique. Finally the heart is projected on to the chest wall with the patient standing as for an ordinary screen examination. It must be remembered that it is the size of the heart in diastole which is an important guide to the condition of the muscle. Areas are measured by means of a planimeter and are compared with the normal predicted values for the individual on the basis of age, height, and weight. These are deemed important and much

space is devoted to the methods of compiling probability tables. Nomograms which determine the predicted frontal area and transverse diameter are included. There are chapters on the findings in various diseases—rheumatic, syphilitic, and congenital—and in coronary hypertension and pericarditis. The method is elaborate and would be difficult to carry out in an ordinary diagnostic radiological department, but for special cardiac clinics it offers another, and a very accurate, method of assessing the functional ability of the heart.

Tumeurs intracraniennes

By HARVEY CUSHING, Professor of Neurology in the Faculty of Medicine, Yale University. Paris: Masson et Cie. 1937. Pp. 194. Frs.80.

THE original American version of this monograph was noticed in our columns on its appearance in 1932 (see *Lancet*, 1932, **2**, 192). Its object was to present the operative results, with the case-mortality percentages in different categories of intracranial tumour, of a series of 2000 verified cases treated in the author's clinic. Quite apart from these statistical results the reader gets from the book a remarkably clear bird's-eye view of the clinical and pathological aspects of the subject, set forth with Cushing's characteristic ease of style and beautifully illustrated by many photographs and drawings. The French version which follows a translation into German by F. K. Kessel is not significantly altered; here and there is an amplifying note, while a small paragraph has been added on the basophil adenomas of the pituitary, in which the view is expressed that these tumours, like the acidophil variety, are more sensitive to irradiation than are the chromophobe adenomas. The volume is expanded by the addition of an appendix by W. P. Van Wagenen and one by Hugh Cairns. In these are summarised the results of independent follow-up investigations of the two groups of cases studied while the author was acting as assistant at Cushing's clinic. Their full reports have appeared elsewhere and we published two years ago an abridged account of Cairns's investigation.

Methods of Treatment

Sixth edition. By LOGAN CLENDENING, M.D., Clinical Professor of Medicine of the University of Kansas. London: Henry Kimpton. 1937. Pp. 879. 42*s*.

IN this book Prof. Clendening's avowed purpose—certainly an ambitious one—has been to bring together all therapeutic procedure within the compass of a single volume. Part I is devoted to descriptions of the various therapeutic procedures under their appropriate headings. In Part II therapeutic application is considered and an attempt made to indicate what result is to be expected from a certain line of therapy in any given disease. In that it makes for clarity and obviates the need for repetition, the plan is sound but, unfortunately, the descriptions given in Part I are often too sketchy to be helpful. In this edition the author has revised his ultra-conservative views on the value of treatment by artificial pneumothorax and has rewritten this chapter in the light of what is now widely accepted knowledge and practice. Among other new material is an account of the use of scarlet fever toxin as an immunising agent, of pertussis vaccine, and of the treatment of delirium tremens. The new references to protamine zinc insulin, to sulphanilamide, and to cyclopropane anæsthesia are far too short, and the note on mandelic acid does not explain in what circumstances it should be given and omits any mention of the simultaneous use of ammonium chloride. According to the preface this edition should contain also a note on staphylococcus toxoid, but this is not to be found in the text nor is it referred to in the otherwise adequate index. The statement that no good results have yet been obtained from the use of convalescent serum in measles will surprise many, and the author's ready facetiousness, surely misplaced in a book of this kind, is apt to pall. Nevertheless this is a painstaking piece of work which does much of what it sets out to do and includes many valuable suggestions such, for example, as the intranasal use of pituitary extract, advocated by Slemon, in the induction of labour.

Clinical Atlas of Blood Diseases

Fourth edition. By A. PINEY, M.D., M.R.C.P., Consulting Physician, International Clinic, Tunbridge Wells; Assistant Physician, St. Mary's Hospital for Women and Children; and STANLEY WYARD, M.D., M.R.C.P., Physician, Royal Cancer Hospital, London. London: J. and A. Churchill. 1938. Pp. 127. 12*s*. 6*d*.

IN this fourth edition much of the text has been rewritten and five new plates have been added. No index is provided, but to facilitate reference the table of contents has been arranged in alphabetical order and page numbers have been appended to the entries in the glossary. It is disappointing to find so little reference to the important diagnostic procedure of sternal marrow puncture. In the section on glandular fever the diagnostic value of the presence of peculiar agglutinins for sheep and of cells in the serum is not noted. The 42 somewhat diagrammatic but good illustrations compensate for the style of the text which is too jerky and telegraphic to make easy reading.

Text-book of Bacteriology for Dental Students

Second edition. By ARTHUR BULLEID, M.R.C.S., L.D.S. Eng., Dental Surgeon and Lecturer in Special Bacteriology to the Dental School, Guy's Hospital. London: William Heinemann. 1938. Pp. 207. 15*s*.

THIS little book sustains its claim well that it is able to give the dental student and practitioner "an insight into the bacteriology of general disease without forgetting his special needs in his own sphere—the mouth." It is conventionally written but it includes all that is generally demanded in English examinations on dental surgery. The subject is treated from a severely practical standpoint; the author has no doubt found, like others experienced in the teaching of bacteriology to dental students, that they imbibe the subject much better from technique than from theory. The sections on the special bacteriology of the mouth are interesting and authoritative, but they serve as a reminder of the need of further systematic work on the microbiology of the mouth. The section on the streptococci, a relatively important subject to dental surgeons, might have been rewritten in better orientation with current work on the subject and the sections on immunity are over-brief and not very illuminating. On the whole, however, the book is adequate for its purpose, indeed it stands almost alone in this country as an introduction to bacteriology suitable for the needs of dental students.

THE LANCET

LONDON: SATURDAY, JUNE 4, 1938

DRUGS REVINDICATED

THE neurophysiologist of ten or even five years ago despised drugs as being far too variable and uncertain in action to be worth serious study in his line of work; he regarded as far more profitable experiments which gave precisely measurable records of neuromuscular activity. But in the last five years the chemists and the pharmacologists have made him swallow his scorn. As Sir GOWLAND HOPKINS remarked in our columns last week, "chemistry made an unexpected and impressive appearance in the physiological arena"; the work of Sir HENRY DALE and his school, built on the foundations sketched years ago by T. R. ELLIOTT and laid by OTTO LOEWI, has bridged the gap that lies between the end of a nerve-fibre and the cell to which that fibre takes a stimulus, and has bridged it apparently with a purely chemical process. Proceeding along the nerve-fibre the physiologist may think and experiment in terms of ionic changes and electrical potentials, but when he reaches the nerve-ending he must now picture an explosive shower of big honest chemical molecules some of which, descending on the body of the cell to which the fibre leads, rouse it to activity. In some of these fibres (pre- and post-ganglionic parasympathetic, pre-ganglionic sympathetic, and post-ganglionic sympathetic vasodilator fibres, fibres to sweat glands, and motor fibres to skeletal muscles) the molecules are those of acetyl-choline. Scarcely has the shower descended on the recipient cell before it is made to evaporate by the enzyme choline esterase, lying in wait for it; so that the stimulation of the cell is very brief and the field is clear for its repetition within a very short space of time. Some recipient cells, but not all, may be shielded from the stimulating shower by the presence of atropine. On the other hand the choline esterase is inhibited or inactivated by the presence of eserine, which therefore intensifies the stimulative effect of the acetyl-choline; and that property of eserine has made possible this whole fascinating experimental exploration of chemical transmission at nerve-endings. The thesis is still not without its gaps and inconsistencies, but in spite of some opposition it has gained general acceptance, and directly and indirectly has begun to influence clinical thought and clinical experiment. It was therefore opportune, and for the physician most welcome, that Prof. F. R. FRASER should take its clinical aspects as the subject of his Croonian lectures delivered before the Royal College of Physicians of London last week and this.

After expounding the main thesis, summarising the evidence on which it rests, and giving a list of the various neuromuscular and autonomic functions which have been proved to depend on "cholinergic" innervation, Prof. FRASER went on to examine the action of acetyl-choline when introduced into the body from without. In animals, given in large enough doses into the blood stream, it has been shown to produce all the physiological parasympathetic effects, together with certain sympathetic effects from sympathetic ganglionic stimulation, and contraction of striped muscle-fibres. These effects are all transient, because the substance is so rapidly destroyed by the esterase present in the blood itself as well as in the tissues. Some of them may be obtained in man by intravenous injection, notably vasodilatation, fall in blood pressure, and slowing of the heart, the last even to the extent of transient standstill; but again the rapid destruction by esterase makes the effects very brief, and almost entirely forestalls them when the acetyl-choline is given subcutaneously or intramuscularly. It follows therefore that, although acetyl-choline given by one of those routes has been recommended in the treatment of paralytic ileus, hypertension, vasospastic conditions, varicose ulcers, epilepsy, cerebral thrombosis, and acrodynia, its therapeutic use in these conditions is ill-founded; nor has it met with acceptance from critical observers.

In theory, the desired effects should be obtainable if the acetyl-choline could be protected from the esterase. The equivalent of this has been achieved by the synthesis of two related substances which have broadly the same pharmacological actions as acetyl-choline and are chemically much more stable. These are carbaminoyl-choline, known as Doryl, and acetyl-β-methyl-choline, known as Mecholin. Doryl, given subcutaneously in man, causes flushing and sweating, salivation and lacrimation, fall of blood pressure and bradycardia, peristaltic unrest in the gastro-intestinal tract, and increased tone in the bladder leading to micturition. Its intensity of action varies from time to time and from subject to subject, and tends to be greater on the stomach, the gut, and the bladder than on the cardiovascular system; its duration is from 20 to 40 minutes, or rather longer on the intestine and the bladder; when excessive, its action can be counteracted by atropine. In therapeutics its usefulness has been proved in the management of post-operative abdominal distension, and of post-operative or post-partum retention of urine. The effects of mecholin, in man, resemble those of doryl fairly closely, both in nature and in duration. On the cardiovascular system, however, they are relatively more pronounced, and on the gastro-intestinal tract and bladder less so. Consequently mecholin has found its greatest therapeutic success in the treatment of supraventricular paroxysmal tachycardia, in which its vagus-like inhibitory action, either alone or reinforced by carotid sinus pressure, will more often than not check the paroxysm.

An alternative way of producing these parasympathetic and other effects is to protect the body's own acetyl-choline from rapid destruction

by esterase, and thereby intensify the effect of whatever nerve impulses are physiologically passing down the nerve-fibres concerned. This can be done by the pharmacologist's old favourite, eserine (physostigmine), or by its new synthetic mimic, Prostigmin, preferred by the clinician. In man, prostigmin exerts a greater effect on the intestine than on the cardiovascular system, and like doryl has been found distinctly useful in reducing abdominal distension after operations; both drugs give best results if they are followed by enemata. The most dramatic prostigmin effect, however, is its restoration of power to the weak muscles in myasthenia gravis, an action which invites the suggestion that the muscles are weak because the physiological acetyl-choline production at their nerve-endings is deficient. Prof. FRASER quoted other observations, however, which show that a fuller and more complicated explanation will be required before the myasthenic mechanism is made clear. In this connexion, fairly large doses of prostigmin are necessary, and they must often be combined with atropine, which blocks its undesired influence on heart and intestine without impairing its effect on striped muscle.

We have mentioned only a few simple and conspicuous features emerging from three lectures packed with close argument and factual detail, and we have chosen those which offer accredited help in the everyday practice of medicine rather than those which open up new and interesting possibilities for the investigator. Much has yet to be learned about acetyl-choline transmission—assuming that the theory has come to stay—in various parts of the body; adrenaline-transmission at sympathetic nerve-endings has not yet been analysed; there is still the question of synaptic transmission within the central nervous system; and the synthesising chemists are not likely to stop at two or three new substances. Out of it all will come, no doubt, a most interesting chapter of physiology, and some contribution to the practice of medicine. Meanwhile the day is already past when a cynic could say to the student conning his pharmacopœia, "It is mostly rubbish; you can count all the drugs you really need on the fingers of two hands."

EMERGENCY BED SERVICE FOR LONDON

IN his presidential address to the council of the King's Fund on May 27th the DUKE OF KENT announced that the voluntary hospitals emergency bed service would begin operations on June 21st. The service will be controlled by a committee under the chairmanship of Sir HAROLD WERNHER, and its main feature will be a central office through which acute cases can be admitted to hospital without delay. The organisation of the service has necessitated a great deal of preliminary work by the Voluntary Hospitals Committee and by the hospitals concerned. Hospitals have had to alter their internal arrangements for the admission of patients to avoid delay, and to some extent they have had to abrogate their selective powers as far as emergencies are concerned. Arrangements have been made for a staff capable of dealing efficiently with about 100 inquiries a day from doctors, and finally about £3000 a year has had to be guaranteed by the King's Fund to cover the cost of the scheme.

The central office will be at the headquarters of the King's Fund and here a record, corrected twice daily, will be kept of the beds vacant in all the London voluntary hospitals. These will be shown by tickets of different shape and colour, according to sex and medical classification, on a large indicator board, so that the details of available accommodation can be seen at a glance by any of twelve operators. A doctor who wishes to arrange for the admission of an acute case will telephone the particulars with his diagnosis to the office and will be told as soon as possible whether there is a vacancy at the hospital he favours, and if not whether there is one elsewhere. Arrangements have been made too with the London County Council by which their ambulances can be booked through the service if necessary. In this way the familiar pointless calls to a succession of hospitals will be saved. The service will be open every day from 8 A.M. to 10 P.M. to begin with, during which period about four-fifths of all emergency calls arise, and will of necessity be something of an experiment.

All doctors living within 11 miles of St. Paul's will be notified by letter of the working details of the service, and of the telephone number of the central office, which will not be published in the directory so as to avoid calls direct from the public. Although they will receive no official notification we trust the service may be available to doctors outside the metropolitan area, who are in fact responsible for 40 per cent. of the admissions to some London hospitals, and to whom the time and expense involved in telephone calls under the present arrangements is almost intolerable.

TONSILLECTOMY AS A PROPHYLACTIC RITUAL

As long ago as 1923 Sir GEORGE NEWMAN issued the first of his many warnings against premature resort to tonsillectomy, urging the adoption of a more conservative attitude. His words were not heeded. Among the elementary school-children of England and Wales there are official records of some 42,000 tonsillectomies in 1919, 110,000 in 1931, the crest of the wave, and nearly 81,000 in 1936. The school medical officer for London said in 1931 that more than a third of its elementary school-children had been operated upon by the time they left school at 14. And the recent report of the school epidemics committee of the Medical Research Council[1] shows that at least half the boys and girls entering certain typical public schools have undergone tonsillectomy. There is then no basis for argument about the fact of increase; only the necessity for it can be a matter of contention. J. ALISON GLOVER and JOYCE WILSON[2] were unable to find valid evidence of a reduced incidence of

[1] *Spec. Rep. Ser. med. Res. Coun., Lond.* 1938, No. 227.
[2] *Brit. med. J.* 1932, 2, 506.

illness following tonsillectomy on a wide scale, or statistical support for the theory that it closes an entrance for infections or respiratory diseases; it is fair to add that many specialists in diseases of the ear, nose, and throat are convinced from personal observations that the removal of greatly enlarged tonsils is beneficial to general health as well as preventing local or general infections.[3]

It is, however, the mass rather than the individual attack that has raised doubts which will be strengthened by data, briefly summarised on another page, presented by Dr. GLOVER on May 27th at a meeting last week. In this return to the charge he has left "the strange facts of incidence to speak for themselves." And strange indeed are some of the figures he gave. For example, taking the operation rates on elementary school-children in 1936 as an index of incidence it seems that a child living in Rutlandshire or the Soke of Peterborough is 19 times more likely to undergo tonsillectomy than one living in Cambridgeshire; an Enfield child 20 times more likely than one in Hornsey; and one living in Bexhill 27 times more likely than the child in the somewhat less desirable environment of Birkenhead. Apart from a belt of high rates on the South Coast, extreme variations throughout the country present themselves, entirely unrelated so far as one can see to environment, circumstances, efficiency of school medical or dental services, or to any recognisable factor. Rural county A with an average annual attendance of 2207 elementary school-children had 1010 operations in the nine years 1928–36. At the same rate rural county B, not far distant, and with an average attendance of 8621 children, would be expected to record 3945 tonsillectomies; the actual number was 335. Environment and social circumstances were not unalike, and yet it seems that 3610 who would have been operated upon had they lived in A were not operated upon because they lived in B. Can there be a rational explanation of such geographical differences? It seems either that some areas must be over-active or others neglectful of their duties.

All figures to which Dr. GLOVER has had access show a higher incidence of operation on boys than on girls. Yet, he points out, acute tonsillitis seems to fall on male children no more heavily than on female, the recorded incidence of sore-throat in boarding-schools is higher in girls (though differential accuracy of recording may well play a part in this difference), and acute rheumatism is higher in elementary schoolgirls than in boys. In regard to age Dr. GLOVER gives the distribution in four series, hitherto unpublished, which agree in showing roughly two-thirds of the operations taking place at ages 5–8. He emphasises that this period in the life-history of a child is a time of great change not only in his oral cavity and in his general development but usually in his environment as he passes from the familiar infections of the home to the "herd" infections of the school. Is it not possible, he asks, that many of the operations performed between the ages of 4 and 6, ages of rapid development, remove tonsils which are enlarged physiologically or in response to their protective function? And may not some of the improvement ascribed in such cases to tonsillectomy be really due to physiological changes which normally take place at this stage in the child's life? In assessing the after-results of operations, this question of age is, of course, of fundamental importance and no control can be regarded as valid which ignores it.

If we can accept the figures on social incidence at their face value, it is the well-to-do child, better housed and better nourished, whose need for tonsillectomy is greatest. The incidence is at least threefold heavier on the children of the affluent. Of boys entering one of our most famous schools in recent years the school medical officer reports the nearly incredible figure of 83 per cent. operated upon before entry. If such an operation is a necessary concomitant of modern life, to which we must reluctantly submit our children for the sake of their health, then any relapse from these Spartan standards should be followed by dire results. The examples quoted by Dr. GLOVER do not confirm such fears. In Hornsey Dr. R. P. GARROW, on appointment as school medical officer, reduced the number of operations from an annual average of 169 to only 13. No evidence of retribution in the returns for otitis media or other conditions has accumulated. On a larger scale was the reduction introduced in Derbyshire by Dr. W. M. ASH from over 2000 operations per annum before 1931 to less than 200 a year since that date. In other words, in six years some 13,000 children in the county have been reprieved. To secure statistical evidence of the effect is not easy, but it seems that school attendance has not suffered and compares well with the average, while the incidence of deafness, otitis media, and enlarged non-tuberculous cervical glands has not increased. Other county medical officers likewise report no unsatisfactory results following conservative treatment in large numbers of cases. There certainly seems a strong case for restraint coupled with observation of developing children over a period of years with careful records not only of the morbidity, local and general, but of the size and appearance of the tonsil.

[3] *Post-grad. med. J.* 1934, **10**, 6.

MEDICINE AND CHARITY

THE defeat of the St. Bartholomew's Hospital Bill is a temporary but serious set-back to the scheme for a paying-patients' block. For some fifteen years the hospital has had the idea of providing for the class of men and women who are unfitted for admission to the general wards but yet cannot afford the expense of private treatment in the ordinary nursing-home. St. Bartholomew's was one of the first in bestirring itself in this direction. It is to-day almost the only one of the London teaching hospitals which has no pay-beds. Its funds are vested in charitable trust for the benefit of the sick poor. The Select Committee of the House of Lords, in rejecting the Bill, was evidently impressed by the argument that

the patients with an income of £500 to £1000 a year who are able and anxious to be admitted as paying patients cannot be included under the description of "sick poor." The Voluntary Hospitals (Paying Patients) Act of 1936 enabled hospitals to use accommodation for paying patients if it was not required for other patients. The Lord Chancellor took the view that the new Bill sought to devote to paying patients resources which were actually required for the express purposes of the trust. The Attorney-General's representative could thus argue that the proposed block for paying patients would be brought into being at the expense of charitable funds, and that those funds could only be restored to their original and proper purpose if the paying-patients' block was a commercial success. In these circumstances the progress of the Bill was hopeless, though it offers the logical remedy for difficulties which Parliament acknowledged and placed on record in the preamble to the St. Bartholomew's Hospital Act of 1935. Whatever the Parliamentary position, the result for St. Bartholomew's is that the hospital is at a comparative disadvantage, and its efficiency may suffer. The rebuilding programme has produced magnificent wards for surgical and medical cases; the paying-patients' ward has had to wait. If the general funds of the hospital must not be used for the patient of moderate means, private donation is the only remaining resource. Where is the generous donor who will step into the breach?

On the larger question, however, it is clear that the proper place of charity in the provision of hospital services requires reconsideration. Though most people are willing to subscribe a little money for relieving the really poor, only a few very rich people feel called upon to subsidise medical attention for the middle classes. Yet such subsidies must be provided in some form if a large proportion of the population—termed in America the "medically indigent"—are to get the benefit of modern science; for the family with £750 a year cannot purchase full medical care in the open market. Failing "charity" there is the alternative of State aid, and Prof. ERNEST BARKER chose a highly topical subject for his address to the British Hospitals Association conference last week when he compared hospitals to universities as suitable recipients of grants from public funds. The State, he said, pays about £20,000,000 a year to the universities through the University Grants Committee, attaching no conditions to the payment; and he suggested that similar recognition of the value of hospitals to the community would enable them to continue their work without curbing their voluntary spirit or drying up the springs of private charity. How long these springs will continue to run when the standards of municipal hospitals have risen to the standards of the best voluntary hospitals it is, of course, hard to say, and with unification of the hospital services of every locality grants from public funds would no doubt play an increasing part in maintaining every kind of hospital. In the meantime there is a logical case for direct support from the State for those hospitals which carry on the education of medical students from the time when they proceed from the heavily subsidised medical schools to the end of their clinical course. It is surely important for senior students to learn their work of handling, dieting, and mending sick people in institutions whose services are unhampered by constant financial anxiety.

ANNOTATIONS

MORTALITY OF TRANSPORT WORKERS

IT does not require a great deal of sagacity to recognise the fallacy of using the mean age at death as a measure of the occupational hazards of those employed on different kinds of work. For example, the mean age at death of bishops, as William Farr pointed out three-quarters of a century ago, is very much higher than the corresponding average for curates; but conferring upon all the curates episcopal authority will not necessarily save them from an early grave. The average age at death in an occupation must depend in part, it is obvious, upon the age of entry to that occupation and the age of exit from it—if exit takes place for other reasons than death. Few men are so fortunate as to become bishops in early life and so there can be no risk of death at young ages in that august group. Few men cease to be bishops before they die but they may well cease to be curates. The curates lose both on the swings *and* the roundabouts.

Our attention has been called to the publication (*Lilliput*, April, 1938, p. 375) of figures purporting to show the length of life in certain occupational groups, which exemplify this patent but still not uncommon fallacy. These figures, calculated from data published by the Registrar-General and entitled "the average length of life," appear to be merely the average ages at death of differently employed men dying in 1921–23 (estimated from the mortality tabulated in the Registrar-General's Occupational Mortality Supplement relating to those years). The averages range from nearly 71 years for the Anglican clergy and for barristers to only 39 years for a group called "busmen" (actually, it seems, bus and tram conductors only). It would be idle to refer to so valueless a contrast if it were not being put forward seriously as evidence of the disadvantages of the busmen's conditions of employment. It can, of course, provide nothing of the kind. At the census of 1921 the majority of bus and tram conductors were of ages less than 35 and this young age-distribution can certainly be ascribed not to their early disappearance by death but to the relative youth of the industry on a large scale and to the recruitment after the war of a young and expanding staff. In 1921–23 there can have been but little time for most busmen to have lived to their natural duration of life. Those who died must have died at relatively early ages, merely because the total population was composed of persons at those ages.

The proper assessment of their mortality experience against that of males in other occupations would be the comparison of the death-rates at equivalent ages in the two, or more, groups, or a comparison of their standardised mortality-rates. Figures of the latter type show that the three groups, omnibus and tram conductors, motor-drivers, and tram-drivers, each had in 1921–23 rather *lower* mortality-rates

than all males. Such better figures might well be expected, for the transport groups are composed of men selected as physically fit for an exacting type of work and on that ground alone should enjoy an advantage over the general population of males. Whether the advantage shown is as great as it should be or is reduced by occupational disadvantages cannot be said. The official figures for 1930–32 to be published shortly may throw some light on it. It is common knowledge that a large and socially important body of men firmly believe that their health is affected by their working conditions; the question whether this is true is still under investigation. A report by the Industrial Health Research Board gave some support to this view and further inquiries are being pursued by a committee appointed early this year by the Ministry of Labour. In the meantime it is a pity that anyone concerned should be misled by fallacious statistical reasoning; as Farr said, discussing similar evidence relating to dressmakers, "false arguments injure instead of aiding their cause."

SURGICAL TREATMENT OF CUSHING'S SYNDROME

IT cannot yet be claimed that any form of treatment for Cushing's syndrome has met with great success. The prospects are perhaps brightest when the disease is due to a tumour of the suprarenal cortex, because surgical removal of the tumour may then bring about a cure if it is done before malignant changes have taken place. Such a result was nearly achieved by Cahill and his co-workers,[1] and though their patient succumbed to metastases a year after operation a remarkable return to normal health and appearance had been noted in the interval. In the absence of any clinically demonstrable tumour in the suprarenal region or elsewhere the disorder is usually attributed to a primary pituitary dysfunction, and efforts have accordingly been made to depress the activity of the anterior lobe by deep irradiation. Attempts of this kind have not in general been rewarded by sustained improvement. A more drastic attack along the same lines is the implantation of radon seeds into the anterior lobe, and elsewhere in this issue will be found an account by Mr. Pattison and Dr. Swan of the effects of this operation upon two typical examples of the syndrome, in which previous deep radiotherapy had brought no improvement. Two radon seeds, each of two millicuries dosage with gold screenage, were implanted through incisions in the diaphragma sellæ in the first case, and in the second, where a part of the anterior lobe had already been removed at an earlier operation, three seeds representing a total dosage of 9 millicuries with platinum screenage were inserted. The remarkable and unexpected effect of this treatment, in both cases, has been a great improvement in subjective health. In the first patient this was accompanied by a loss of the facial hirsuties and plethora, slight lowering of the blood pressure, and more frequent menses; in the second a diminution of plethora was the only objective change. Further experience will doubtless determine the value of this form of treatment, but optimism at the present moment must be qualified by the evidence of its failure in the case recently reported by Maclay and Stokes.[2] Here two radon seeds were implanted by Prof. Hugh Cairns in the anterior lobe of a woman exhibiting the syndrome, but no improvement in her condition was recorded and necropsy about a year later showed considerable focal destruction of the tissue at the site of implantation. It is of interest that no tumour was found in any of the endocrine glands, and future work may possibly show this to be an unsuitable class of subject for implantation of radon.

[1] Cahill, G. F., and others, *Surg. Gynec. Obstet.* 1936, **62**, 287.
[2] Maclay, W. S., and Stokes, A. B., *J. Neurol. Psychiat.* 1938, n.s. **1**, 110.

GAS ATTACKS AND PANIC

ACCORDING to 10 Cambridge scientists[1] the purpose of A.R.P. in Great Britain is not to protect the public but to set up a system whereby it can be regimented into obedience and restrained from panic. The main object of their small monograph[2] seems to be to shake confidence in the Government. One complaint they make is that the measures officially recommended for the protection of the civilian population are grossly inadequate, but they estimate that the sum needed for the provision of air-raid shelters for all would be something between 425 and 700 million pounds. They pour scorn on the "bucket and spade" precautions against incendiary bombs and on the fact that information and instruction has to be sought instead of being officially provided. The question is perhaps one of relative values and urgencies.

Besides its politically flavoured allegations of "a tragic deception" of the people, the survey contains some sound if not very original comments on the dangers to be anticipated from the use of high-explosive bombs and bombs of mixed type alternately with gas. The authors may well be right in regarding gas as rather a red herring, and civilian gas-masks as something of a placebo. It is not clear that they have ever tested one of these masks; one obtained from a London firm, and similar in all ascertainable respects, was found definitely inadequate to keep out diphenylcyanarsine in very low concentration. It must not be forgotten, however, that the civilian mask is not intended for prolonged use in gas in high concentrations, but chiefly to enable the wearer to move out of the area where the gas is concentrated or to supplement the protection of a gas-proofed room; and the chance of protecting an undrilled population with any but the simplest pattern of respirator is very slender. There remains for consideration a doubt—implied though not specifically stated—whether a spare room in a well-constructed house can be made reasonably proof against gas. Nobody supposes that the walls of a house can do more than greatly delay the entry of gas from the outside. But in testing the *exit* of carbon dioxide from a room the Cambridge group ignore the fact that there is always more or less breeze on the outside of a house; a high concentration of a readily diffusible gas like CO_2 could not be kept up outside for more than a few seconds, and so the chance of much *entering* would be slight. The rate of penetration of liquids or smokes would of course be very much slower; in fact smokes would be kept out completely, and liquids with heavy vapours would only penetrate very slowly, as the Home Office experiments quoted on p. 38 clearly show.

To deprecate these criticisms does not imply satisfaction with our knowledge. There may well be a tendency to place undue faith on the proofing

[1] Air Raid Protection: the Facts. By a Committee of the Cambridge Scientists' Anti-War Group. *Fact*, April, 1938.
[2] Breathe Freely! The Truth about Poison Gas. By James Kendall, M.A., D.Sc., F.R.S., professor of chemistry in the University of Edinburgh; formerly lieut.-commander in the United States Naval Reserve, acting as liaison officer with Allied Services on Chemical Warfare. London: G. Bell and Sons. 1938. Pp. 179. 3*s*. 6*d*.

of rooms, because gas-proof dugouts were found effective during the war, when conditions were much more favourable, and further experiments by the Home Office on a larger scale might provide valuable information. Meanwhile we suggest that those who are alarmed by the 10 Cambridge scientists should turn to a Scottish one to hear the arguments on the other side, expressed with sanity, temperance, and humour. Prof. James Kendall, F.R.S., is careful to exclude the Royal Society, the University of Edinburgh, and the United States Navy Department from any responsibility for his statements. Though he treads on many toes in passing, he stands essentially on his own feet. His primary object is to examine in detail the question of the dangers of air attacks on Great Britain in the hypothetical next war and to place the facts and possibilities before the public in proper perspective. His conclusion is that the creation of panic is the only real reason for an aggressor using poison gas on a large city, and that therefore panic is the only real danger. There is no reason to expect that our morale would prove inferior to that of any other country if we had to be put to the test, and the plans so far made for preparing us find a good deal of support not only from the standpoint of "common sense" but from Dr. Rickman's arguments as a psycho-analyst, published on another page of this issue.

THREE RHEUMATISM RESEARCH FELLOWS

AT a luncheon given at the Athenæum Club on May 26th Lord Horder announced the appointment by the Empire Rheumatism Council of three whole-time research fellows. Dr. C. B. Dyson and Mr. H. J. Taylor, Ph.D., will work at present in the laboratory built and equipped by Mr. Alexander Maclean at the Hospital of St. John and St. Elizabeth. Dr. W. S. Tegner, who holds the Sir Alexander Walker travelling scholarship, will spend a year studying methods of treatment at clinics in Europe and North America. Dr. Dyson has been engaged for seventeen years in pathological research at St. Mary's Hospital, Paddington. Dr. Taylor has been working for ten years at the St. John Clinic, Pimlico. Lord Horder emphasised their appointment as the spearhead of a movement for intensive research into the causes of rheumatic diseases. Other whole-time workers would be appointed as funds became available.

APPENDICECTOMY FIFTY YEARS AGO

WE have received the following letter from Southern Rhodesia :—

DEAR SIR,—It may interest you to know that it is now just on fifty years since the first operation of the removal of the vermiform appendix was performed. It was performed in I think June 1888 by Mr. (afterwards Sir) Frederick Treves upon myself at my father's house. I thought you might perhaps care to refer to it in your journal as the operation subsequently became so usual. (I wish Mr. Treves and I had patented it.)

I am, yours faithfully,
SAMUEL JAMES SMITH.

Mr. Smith may well be right for on Feb. 4th, 1888, Mr. Treves had reported to the Royal Medico-Chirurgical Society a case of relapsing typhilitis in a man aged 34 in which he had intended to remove the appendix and did not. The abdomen was opened during a symptomless period after the subsidence of a second attack, and a kinked appendix was found which became straight at once after division of its mesentery. Treves forbore to remove it; the patient made a perfect recovery and up to the time of the report had remained free from further relapses. To Morton of Philadelphia is given credit for the earliest of all successful appendicectomies (in 1887), and in this country Treves had many runners-up. At the same meeting of the Royal Medico-Chirurgical Society Mr. Timothy Holmes reported removal of part of the appendix of a man aged 30, and Mr. Howard Marsh mentioned the case of a girl who died from peritonitis from whom he had too late removed the appendix. Mr. Thomas Bryant, on the other hand, said he had never removed the vermiform appendix, although he felt there must be cases in which it was desirable. How the demand later grew in volume was recalled by Colonel Thornton on p. 1256 of our last issue.

THE DIRECTION OF THE MARIE CURIE HOSPITAL

WHEN in 1925 the decision was reached to develop a scheme of controlled research in the treatment of uterine cancer by radium, at four hospitals staffed by medical women, a director was needed to coördinate methods and to analyse and record results. It so happened that Dr. Elizabeth Hurdon was available and willing to accept a post for which her previous experience had fitted her so well. Though born in Cornwall and an M.D. of Toronto, it was mainly at the Johns Hopkins University that she gained this experience, first in pathology under W. H. Welch, and later as assistant, as instructor, and finally as associate in gynæcology, when she took her surgical fellowship. She worked, taught, and published jointly with H. A. Kelly during the period, early in this century, when the renown of the clinical research in progress at this famous centre was attracting students from all over the world. Before she started work with radium she informed herself by visits to the pioneer centres of this form of therapy of the most suitable technique, modified it where this seemed desirable, and, on the adoption of a uniform procedure by the surgeons attached to the several hospitals, took responsibility for the dosage. The incorporation of the four clinics into one unit, the Marie Curie Hospital, took place in 1929; and the results achieved at this hospital under her direction at first with radium alone and more recently with X rays also have achieved wide fame as, in the words of Dr. Henri Coutard, among the best in the world.

Dr. Hurdon's decision to resign from her arduous post, which is recorded in the ninth annual report of the hospital, was made long enough in advance to enable the authorities to arrange for an overlap of two years during which her successor, Dr. M. D. Gilmour, has worked closely with her. The comment of the board of management on the inestimable service rendered by Dr. Hurdon to clinical research in the treatment of cancer by irradiation will be endorsed by her fellow-workers at home and abroad.

OTOGENOUS NON-PURULENT ENCEPHALITIS

FROM time to time a case of suppurative otitis is reported, with symptoms suggestive of cerebral abscess, in which an exploratory operation is performed, sometimes more than once, but no pus is found and the patient finally makes a complete recovery. A few fatal cases also are on record where post-mortem examination has revealed no abscess but an area of softened hæmorrhagic brain tissue. If the patient recovers one cannot exclude the possibility that an abscess has formed and been absorbed, or that it has become encysted, though the latter is improbable

if there are no subsequent symptoms. Jerlang[1] of Copenhagen describes a case of this nature and has collected some 18 others, and he gives a useful account of the clinical features of the condition. The diagnosis is extremely difficult. Sometimes the symptoms are so vague and atypical that the affection is either misinterpreted or is not recognised at all. In Jerlang's case cerebral puncture was performed in five different directions and cerebellar puncture in three, and this procedure was repeated after five weeks, without striking pus, but the patient slowly made a complete recovery and has remained well for eighteen months. Usually the diagnosis will be reached by exclusion with the help of the further course of the disease. The temperature, however, is usually high and often of the septic type, and a subnormal temperature has never been recorded. The pulse-rate, too, is ordinarily proportionate to the temperature and there have been no cases with true bradycardia. Lumbar puncture is no help in the diagnosis, for the cerebro-spinal fluid may present any variety of picture, from normal to turbid with numerous cells, with or without increase of pressure. Most cases have been treated as cerebral abscess, which could never be excluded with certainty, and fortunately exploratory puncture is not likely to increase the encephalitis.

There seems to be no doubt that otogenous encephalitis stopping short of suppuration is a clinical entity, and knowledge of its existence is important in the estimation of the prognosis of apparent cerebral abscess when puncture fails to reveal pus. The surgeon must not consider such a condition hopeless and on that ground be tempted to incise the brain without restraint. Although a few reported cases have ended fatally the prognosis on the whole is good, and not only as regards life. For even when intracranial symptoms have been severe they have nearly always subsided entirely.

A VETERAN OF LEGAL MEDICINE

THE Medico-Legal Society, at its meeting on May 26th, enjoyed an informal address by Dr. L. A. Weatherly, who is perhaps its oldest member and certainly its oldest active member. Dr. Weatherly was born in 1850 and qualified in 1873, so that his experience far antedates that of many practitioners who have long retired from active life. About once a year he delights the society with some selection from his stored wisdom; as the president, Sir Travers Humphreys, remarked, the society has good nights, better nights, and Weatherly nights. This time his reminiscences included an account of a case in which the police suspected a certain barrister, of notably eccentric conduct, of causing the death of a woman whose body was found in a train arriving at Waterloo; but they did not find enough evidence to justify a charge. Some years later the barrister became a patient of Dr. Weatherly's in his private asylum at Bath. In the course of his treatment he obtained the full confidence of the patient and was allowed access to his diary. This showed that on the day of the murder the man had been staying with friends at Bristol. Inquiries supported the diary, and it became clear that he could have had no knowledge of the murder. Dr. Weatherly remarked that it had always been a great satisfaction to him that this patient had died without knowing of the suspicion against him. Dr. Weatherly's paramount interests have always been in psychiatry, and it is naturally that aspect of legal medicine, rather than its more commonly emphasised pathological side, that most appeals to him. His concluding remarks gave a clue to his dominant outlook on life. It is quite clear, he said, that we live in a big world which contains within itself another big world of mentally abnormal people. This second world is the one in which he has spent most of his working life, rubbing shoulders with psychoneurotics day after day for 55 years. He has found that far above the value of medical treatment of any kind is the value of a kindly word, a shake of the hand and a clap on the shoulder, which bring comfort and happiness to people whom the world calls demented. He would like his epitaph to be "He tried to be a friend to the insane."

[1] Jerlang, E., *J. Laryng.* May, 1938, p. 283.

J. J. ABEL

LAST week we announced that Prof. John Jacob Abel of Johns Hopkins Hospital had been elected a foreign member of the Royal Society: this week we have to announce his death. He was 81 years old, having been born at Cleveland in 1857. He began his career as a schoolmaster and later as school superintendent, went to Johns Hopkins as a graduate student in 1883, and did not take a medical degree till 1888, when he was working at Strassburg. His prolonged sojourn in German, Austrian, and Swiss laboratories and clinics ended in 1891, and a little later he was appointed first holder of the chair of pharmacology at Johns Hopkins University which he was to occupy for nearly forty years. His achievements in it included the final isolation of adrenaline in a chemically pure state and the crystallisation of insulin; but possibly more important than any of his own investigations was the influence he wielded through so many years, both as professor and as editor of the *Journal of Pharmacology and Experimental Therapeutics*. In awarding him its Willard Gibbs medal in 1926 the American Chemical Society announced that it was "for having done more than any living American to promote the human enjoyment of life without pecuniary advantage to himself." In England, besides the recent membership of the Royal Society he received an honorary degree from Cambridge in 1920 and a gold medal from the Society of Apothecaries in 1928. He was president of the American Association for the Advancement of Science in 1932, and in late life, as emeritus professor, was director of the laboratory for endocrine research at Johns Hopkins. In the past few years he and his collaborators there have been working on tetanus toxin and have given reasons for believing that it does not, as is generally assumed, travel to the central nervous system through the peripheral nerves but has a powerful direct action on voluntary muscles.

THE library endowment fund of the Royal Society of Medicine stands to benefit to the extent of nearly £34,000 under the will of the late Colonel Cecil Birt, late A.M.S. Colonel Birt was a regular user of the library, and the bequest was made spontaneously as an appreciation of the services rendered by the library to the fellows of the Society.

THE Lister medal for 1939, in recognition of distinguished contributions to surgical science, has been awarded to Prof. RENÉ LERICHE, who occupies the chair of clinical surgery in the University of Strasbourg. He will deliver his Lister memorial lecture next year at the Royal College of Surgeons of England. This is the sixth award, which is made by a committee representative of the Royal Society, the Royal College of Surgeons of England, the Royal College of Surgeons in Ireland, the University of Edinburgh, and the University of Glasgow.

CONTROL OF THE COMMON FEVERS

POLIOMYELITIS

Reviewed by SIR ARTHUR MACNALTY, K.C.B., *Chief Medical Officer of the Ministry of Health*

IN a recent address[1] I drew attention to the necessity for every field epidemiologist to be a competent clinician. If a comprehensive attack is to be made on an outbreak of epidemic disease, it is equally important for the competent clinician to have some acquaintance with epidemiology. No better example of this can be found than in the treatment and control of epidemic poliomyelitis. Wickman,[2] by studying small circumscribed settlements, first showed that from the village school as a centre poliomyelitis spread in a radial or concentric manner, and demonstrated that individuals with the non-paralytic form of the disease were able to transmit it to others who in turn developed paralysis. It is now well established that infection may be conveyed by :—

(1) Persons suffering from an acute typical attack of poliomyelitis ; (2) individuals having a mild or atypical form of the malady ; (3) healthy persons who have been in contact with infection, but have not themselves developed an attack ; and (4) chronic carriers who have, apparently, quite recovered from a previous infection.

Infectivity in acute cases is greatest during the early stages of the disease. It is also useful to the medical practitioner to know that cases of the polio-encephalitic type are occurring with greater frequency in modern epidemics of poliomyelitis in this country. It puts him on the alert for their recognition. It is for this reason among others that the Ministry of Health continues to schedule polio-encephalitis as a separately notifiable disease, instead of merging it in the notifications of poliomyelitis.

The medical practitioner, therefore, faced with an outbreak of poliomyelitis should not confine his attention to the diagnosis and treatment of his individual patients. His coöperation in the steps taken by the health authorities to control the epidemic will be of the utmost value, and he can only do this with benefit to himself, the community, and his patients, if he appreciates the epidemiological considerations involved, above all, that poliomyelitis is transmitted mainly by personal contact and through the medium of mild or abortive cases and healthy carriers.

INCIDENCE AND SEASONAL PREVALENCE

Compulsory notification of the disease has been in force since 1912 in England and Wales. The reported prevalence of poliomyelitis and polio-encephalitis in England and Wales during ten years together with the number of deaths (in parentheses) is given in the following table :—

Year ..	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
PM ..	801 (112)	452 (112)	532 (85)	506 (108)	339 (63)	656 (103)	714 (135)	590 (82)	633 (97)	530 (66)
PE ..	95 (70)	89 (55)	91 (55)	85 (56)	55 (35)	94 (75)	83 (67)	82 (53)	67 (48)	53 (36)

PM = Poliomyelitis. PE = Polio-encephalitis.

Even an approximate estimate of the incidence of the disease upon the general population cannot be given because, as in other countries, owing to failure to recognise the mild and abortive forms a considerable number of cases are never notified. The incidence must be controlled by many factors, of which probably the more important are the intensity of the outbreak, the virulence of the causal virus, and the susceptibility of the population.

Notification, nevertheless, is of the utmost value in revealing the existence and locality of the disease and in enabling measures of control to be exercised by the medical officer of health with the support of medical practitioners in the affected area. Particular emphasis, therefore, is to be laid on notification and to the need for notifying mild and abortive cases recognisable in times of epidemic prevalence.

Seasonal prevalence must be remembered. The disease prevails in this country in the warm months of the year, July, August, and September, August being usually the month of maximal case incidence. Winter epidemics have been recorded in Sweden and in West Virginia and, indeed, poliomyelitis may occur in any month of the year either in sporadic or in epidemic form. Dry and warm weather appears to favour the virus. It has been suggested that the variable character of the British climate protects us from the occurrence of such extensive epidemics as have arisen in the United States, in New Zealand, and in Australia.

Administrative Control

In the present state of our knowledge, the only effective administrative methods of control are the isolation of patients and contacts. Poliomyelitis is spread by "droplet infection" from persons harbouring the virus. But the facts previously considered relating to mild and abortive cases and "healthy carriers" indicate that these cases so far outnumber the identifiable cases that isolation of known cases and contacts can only exert a limited effect in checking the spread of the disease.

The recent Australian epidemic recorded 1615 cases with 87 deaths in Victoria alone by the middle of January last. Towards the end of 1937 the epidemic spread from Victoria to Queensland, South Australia, New South Wales, and Tasmania. No federal action to enforce interstate quarantine measures was adopted, but the States of New South Wales, South Australia,[10] and Tasmania have required certification of non-contact and surveillance of children coming from Victoria.

Yet, whilst isolation can only exert a partial effect, our experience at the Ministry of Health indicates that much can be done with the whole-hearted coöperation of medical officers of health and general practitioners to check the spread and severity of an epidemic. If the infectivity of the disease is appreciated, the existence of mild and abortive cases realised, and these as well as the more easily recognisable cases are notified and isolated in hospital or otherwise, potential sources of infection are shut off from susceptible individuals, and the epidemic spreads to a much lesser extent than if uncontrolled.

To cope successfully with any epidemic of poliomyelitis a large amount of field work must be intensively done in order to trace the source of case-to-case infection, as much as possible, and to discover and to isolate all child contacts. Dr. C. R. Merrillees gives an interesting account of this field work in the Victorian epidemic.[3] As usually occurs when this field work is properly and thoroughly

done, he traced many multiple family cases and chains of contact infection. Concerning adult spread he writes :—

"Now this adult spread, if it does indeed occur, does not do so frequently, and the cost of interrupting the whole of the State's trade, not only in money, but in ultimate loss of health would be great, and it would be absurd to go back to the early Dark Ages and isolate each little district."

My own experience indicates that exceptionally an adult carrier may transmit the infection of poliomyelitis, but for practical purposes the child contact is the danger.

ISOLATION AND SCHOOL CLOSURE

It is difficult to say how long a patient remains infectious. He should, at all events, be isolated from other children for six weeks and personal association with him limited to the minimum necessity for proper care and nursing. Those in attendance should remember that infection may be conveyed from the nasopharyngeal secretions, the urine, and excreta. A strictly surgical standard of nursing is required, and nurses should be advised to use nasal sprays or douches, and to gargle the throat with normal saline solution. A solution of potassium permanganate, 1 in 5000 in normal saline, has been found to inhibit the action of the virus. The nasal instillation of sodium alum or tannic acid in 4 per cent. solution has been advocated. Picric acid and zinc sulphate sprays have also been recommended. The Canadian results with zinc sulphate nasal sprays indicate that this method of prophylaxis is ineffective.[4] The Consultative Council to the Victorian Government stated there was no evidence that the use of antiseptic sprays or gargles played any part in preventing poliomyelitis.[3] Some authorities, indeed, are of opinion that the employment of chemical antiseptics is liable to destroy the virucidal properties of the normal secretion of the nasopharynx. Children in the affected household should remain away from school for a period of three weeks after isolation of the patient, but, as already observed, complete restriction need not be placed on adult members of the household, provided they remain well. In regard to the closure of residential schools, the balance of advantage is in favour of not closing a school on the appearance of poliomyelitis. If the school be closed, any potential infection is more widely distributed (not infrequently in homes containing younger children), and passes beyond such supervision and control as are furnished in a well-equipped school conducted on hygienic lines with special attention to spacing and ventilation. Expert care and treatment of the patient where medical forces are marshalled to combat poliomyelitis are perhaps likely to be more effective in such a school than at home.

While this advice in general favour of the non-closure of schools remains unaltered, it is only right to add that the circumstances of each epidemic in residential schools require very careful consideration in deciding what is best to be done in a situation of admitted difficulty.

The Victorian experience of day school closure is interesting but inconclusive. In rural areas where the school is the sole meeting place of children school closure was found to be a useful measure, but in certain communities where it is extremely difficult to prevent children mingling out of school it was only of limited use. The report adds :—

"Education in a civilised community is of such vital importance . . . that drastic shutting of schools cannot be recommended by responsible authorities without very careful consideration of all the factors concerned."[3]

THE M.O.H.

The action of the medical officer of health on receipt of notifications, or on learning of suspected cases of poliomyelitis, should proceed on the following lines :—

(*a*) Assist in securing suitable accommodation, including isolation, for the patient in hospital or otherwise ;

(*b*) Ensure the precautions required in the light of the information that the disease is apparently capable of transmission by mild cases or even by the apparently healthy ; and

(*c*) Make investigation of the associated circumstances, including a search for missed cases.

In epidemic periods local authorities should endeavour to inform the public, by means of leaflets, posters, notices in the press, cinema films (preferably shown in the open), lectures in the schools, &c., how infection may be guarded against and of the care to be observed in case of attack. Public information should also be circulated respecting the arrangements and facilities for treating patients which are available in the district. All crowded assemblies should be discouraged, as far as possible, while an epidemic prevails, and all gatherings of young children should be avoided ; nor should young children be allowed to enter any house where there is a case of illness.

The medical officer should advise his council as to, firstly, what can be done to promote early diagnosis during the acute stage of poliomyelitis (e.g., specialist advice and facilities for examination of cerebro-spinal fluid at practitioner's request), and secondly, what arrangements can be made under the local orthopædic scheme for medical practitioners to send all children affected, whether the condition is slight or serious, to an institution equipped to give such special treatment as may be required to prevent avoidable muscular weakness or permanent deformity.

In view of the high proportion of cases of poliomyelitis which occur below the age of five years, and bearing in mind the good results of effective treatment and the serious consequences of neglect, it is important to take such steps as may be possible to secure orthopædic treatment for young children in connexion with the child welfare services. Health visiting and the orthopædic clinic are valuable means by which cases of paralysis are discovered and referred for treatment. All notified cases should be followed up throughout the whole period of their illness to ensure that their treatment is suitable and continuous.

Immunisation

The administration by the subcutaneous, intravenous, or intrathecal method of serum obtained from a patient who has formerly had poliomyelitis (so called "convalescent serum") was advocated by Netter in 1911 in the preparalytic stage with a view to preventing the onset of paralysis. Between 1925 and 1931 Macnamara and Morgan[5] treated 133 persons in the preparalytic stage in outbreaks in Australia with "excellent" results, but admittedly without adequate controls. American evidence states "the results of the study are inconclusive" (New York Academy of Medicine, October, 1932).

The Victoria report (1937) notes that attempts at conferring passive immunity by injections of human blood-serum proved ineffective in practice.[3] It is

clear, therefore, that much more experience of this remedy is necessary before its value in preventing the onset of paralysis in poliomyelitis can be appraised. The same caution applies to normal sera obtained from human beings or from artificially immunised animals. The use of both of these has been suggested because they have been found to contain relatively large amounts of the specific antibody. At the same time it is fitting that the subject should be kept under review. In an article by Eagles, Jensen, and Henningsen (1937) [6] emphasis is laid on the importance of a common standard for expressing the potency of anti-poliomyelitis convalescent serum. The authors investigated a large number of convalescent sera during the extensive epidemic of poliomyelitis in Denmark in 1934, and showed by means of serum-neutralisation experiments on monkeys that it is possible to collect pooled convalescent sera with a neutralising value as great as that possessed by hyper-immune horse serum.

On the other hand, the important experimental work of Hurst and Fairbrother [7] would suggest that the virus of poliomyelitis is a true neurotrope, that is, it exists and produces its characteristic effect only in association with nerve-cells. Prof. Schultz of Stanford University, California, holds that immunity in poliomyelitis is cellular not humoral, the resistance to attack being a function of the nerve-cell and not of substances in the blood stream. He therefore considers the virus to be within the central nervous system and essentially out of reach of circulating antibodies. Brodie and Park (U.S.A.) have come to a similar conclusion.[8]

Several forms of poliomyelitis vaccine have been on trial. A living attenuated virus has been used as well as dead viruses. At the annual meeting of the American Public Health Association held in October, 1935, a certain formolised vaccine was regarded as innocuous, though not necessarily efficacious. Doubt was, however, expressed whether the administration of a living attenuated vaccine which in a few cases has been followed by the appearance of paralytic poliomyelitis was desirable in the present state of knowledge. Dr. J. P. Leake, medical director of the United States public health service, has supplied additional evidence which supports this grave warning.[9] In the Victorian report it is stated that attempts at conferring immunity by vaccines prepared from detoxicated virus proved as ineffective as the serum results.

Respirators

As is well known, in certain acute types of poliomyelitis the paralysis takes an ascending form beginning in the legs, rapidly extending to the trunk and arms, and finally involving the muscles of respiration. To maintain life in such cases artificial respiration is essential and in modern times this is provided by placing the patient in some form of mechanical respirator, of which the Drinker apparatus is perhaps the best known. It is desirable and important that the leading central general hospitals throughout the country should be provided with such an apparatus and that in the event of an epidemic medical practitioners should be informed of its situation.

These respirators proved of value in the Victorian epidemic. The report states :—

"When the epidemic started, only two respirators were installed in Melbourne hospitals. The need for more respirators was soon evident, and Prof. A. F. Burstall, professor of engineering in the Melbourne University, did magnificent public service when he designed a type of respirator which could be made locally. The manufacture and installation of these respirators in hospitals throughout this State was a notable feature in the history of this epidemic." [3]

The practical value of the respirator appears to be limited to cases with temporary peripheral paralysis of the intercostal muscles and diaphragm. Such fleeting palsies are common in epidemic outbreaks of poliomyelitis and without the artificial aid to tide over the period of danger are usually fatal. The apparatus should be used as soon as symptoms of respiratory distress arise, and be used continuously until recovery, or until the residual paralysis has become stationary and the patient has adjusted his respiration to the muscular power remaining with him. For respiratory failure of bulbar origin the apparatus was found to be useless.

Conclusion

Much knowledge concerning the clinical manifestations, pathology, and epidemiology of poliomyelitis has been acquired within a comparatively short period of time. Infection is disseminated, in the first place, like other infectious diseases by case-to-case contact. Fortunately, however, the links in the chain of infection are broken, firstly, by the fact that the causal virus dies out quickly and has a brief existence outside the body ; secondly, because many temporary carriers of infection do not contract the disease owing to lack of that mysterious catalytic agent of infection which is termed susceptibility.

At present the results of prophylactic treatment by convalescent serum are held to be inconclusive, and no protective vaccine which receives general acceptance has been devised. For the control of the disease reliance has to be placed on general administrative measures and the full coöperation of medical practitioners and the public with the health authorities in them. Of these measures of control accurate notification, the recognition of mild and abortive cases of the disease, skilled medical and nursing care, hospital provision, isolation of the patient at home or in hospital, isolation of child contacts, and specialised orthopædic advice and treatment together with after-care may be regarded as the more important. Important too is the abstention from crowded gatherings and places of amusement during epidemic prevalence. Measures of this kind have undoubtedly proved valuable in dealing with British epidemics. Recently, the tragic epidemic in Australia has seen the application of similar measures on a much more extensive scale. It is encouraging to note that the authors of the Victorian report believe with reason that the work of health officials in this way did lessen the incidence of the disease and materially slowed down the course of the epidemic.

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SPECIAL ARTICLES

PANIC AND AIR-RAID PRECAUTIONS

NOTES FOR DISCUSSION

Prepared by JOHN RICKMAN, M.D.

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SINCE air raids may produce panic in the civilian population it is well to consider the factors that facilitate or diminish panic, and what steps, if any, may be taken against it. First let me quote definitions of relevant words.

"Fright, fear, apprehension are incorrectly used as synonymous expressions: in their relations to danger they admit of quite clear distinction. *Fear* requires a definite object of which one is afraid; *fright* is the name of a condition to which one is reduced if one encounters a danger without being prepared for it; it lays stress on the element of surprise." [1(c)]

"*Anxiety* has an unmistakable affinity with expectation: it is anxiety about something. It has a quality of indefiniteness and lack of object. In precise speech we use the word 'fear' rather than 'anxiety' if the feeling has found an object." [1(f)]

Anxiety can be a more or less normal phenomenon or it may be neurotic. "Objective danger is a danger that is known, and objective anxiety is an anxiety about a known danger of this sort. Neurotic anxiety is anxiety about an unknown danger. Neurotic danger is thus a danger that has still to be discovered." [1(g)]

"There are two reactions to objective danger. One, an affective reaction, is an outbreak of anxiety [or fear]. The other is a protective action . . . the two reactions can co-operate in an expedient way, the one giving the signal for the other to appear. But they can also behave in an inexpedient way: paralysis due to anxiety may set in, and the reaction spread at the cost of the other. In some cases the characteristics of objective anxiety and neurotic anxiety are mingled. The danger is known and objective, but the anxiety in regard to it is over-great, greater than seems proper." [1(f)]

The foregoing definitions are clear and would be generally acceptable. In regard to *panic* there is less agreement. The word is popularly used in three ways:

(*a*) To denote a dread not warranted by the occasion. This is covered by "neurotic anxiety." (*b*) Where dread exceeds certain bounds. This places the accent only on quantity and does not take into account the special characteristics of panic—viz., its relation to other people and its "nameless horror." (*c*) For any *collective* dread. This emphasises the social bond but it ignores the fact that in panic the social bond is broken.

These three between them contain several essential features of panic, but they do not go far enough: they ignore the loss of self-control.

CAUSATION OF PANIC

Ætiological factors have been divided into four classes [1(a)]: (*a*) predisposition, (*b*) specific, (*c*) contributory causes, and (*d*) exciting or releasing cause. Without the predisposition and the specific causes the effect—i.e., panic—could not come about; contributory causes need not be present every time there is panic and cannot by themselves produce it.

This formula helps to clarify the issues, for since panic occurs (though infrequently) apart from external dangers and may occur when the external dangers are diminishing, we cannot regard external danger as "the" cause of panic; though of course external dangers contribute very much indeed to the release of panic just as bad housing or malnutrition contribute to the onset of tuberculosis. In both disorders resistance is very important.

The predisposition and specific cause in panic is not clear; it may have something to do with a tendency to nervous breakdown, which under normal conditions is not apparent. External danger mobilises aggressive impulses. If there is no opportunity for immediate outlet the executive part of the mind in dealing with the increased mental tension is forced to effect a redistribution of love and hate impulses. It may be that an incapacity to effect such a redistribution rapidly enough is the predisposing cause of panic. A direct attack on the panic problem by "getting at the roots"—i.e., altering predisposition and specific cause—is very probably not possible, at least as regards the community as a whole; but this should not deter anyone from attempting to grapple with the contributory factors, difficult as this may be.

PANIC IN AN ORGANISED GROUP [1(g)2]

In an organised artificial group, such as an army, the outbreak of panic, or its absence, does not depend on the amount of objective danger; of more importance is the lowering of the resistance to dread.

In an army in panic orders are not obeyed; the mutual reliance on authority is lost and the members of the group act as individuals—i.e., the group tie holding them together (sharing the submission to the officers and the solidarity that comes from sharing an ideal) is lost. "Each for all" gives place to "each for himself."

The ties that bind a member of the group to other members also serve to keep in check the unrestricted expression of the individual's emotional reactions; loyalty to the group facilitates self-control. Some of the self-esteem that is lost by submission to the group leader, or by the acceptance of the group ideal, is compensated for, while the group tie is strong, by the good regard or moral support of the group. When the group ties are broken few individuals can in the face of danger readjust themselves quickly enough to the sudden demand for *self*-reliance (before, there had been reliance on the group); and, having no support either within or without, they are the victims of the "nameless horror." Panic when it comes is always a surprise, the unexpectedness arising not from a new external situation (the degree of danger may not have changed) but from a revelation of internal confusion or lack of control.

Members of an organised group turn some of their affection towards other members of the same group, but their hostility is in the main turned outwards; the cohesion of the group is thus maintained by the maintenance of bonds of affection and hate—safely distributed. When group cohesion vanishes some of the affectionate ties have lost their object—i.e., are now available for persons outside the group—and the forces of hostility, heretofore mainly directed outwards, are now detached from their object and may turn inwards towards members of the same group. A part of the "nameless horror" is due to the turning back of outwardly projected (and therefore formerly "safe") hate upon persons who had stood near to the self in time of danger and were loved and trusted. Thus the breakdown of the group system has personal as well as social consequences;

hate is once more dangerous and its exercise, even in thought and intention, is felt to jeopardise persons who have not merited such hostility. In panic, to the mental distress of anxiety is added that of guilt.

But the state of panic goes a step further and the subject feels that he is without friends at all, he can trust no one: he is alone, or at least friendless. Not really alone however, because the "shortening of the trajectory of hate" (no longer extending mainly outside the group) turns former friends into potential enemies, and his self-knowledge that panic increases his own egoism tells him that others are now less willing to bear him goodwill. Therefore another source of the "nameless horror" is not mere loneliness but the suspicion that one is surrounded by potential enemies.

Yet another source of the mental anguish of panic is the realisation that one is helpless to defend those one loves. Not only are the group ties broken, but the capacity to do any constructive action in the face of danger is lost. The loss of inner resources against disaster renders one powerless to stop destruction, and there is a tendency under these conditions to join with the enemy and start destroying what lies nearest, which is usually also dearest. This perhaps is the greatest reason for the dread of panic; the victims realise or are dimly aware that it is a condition in which values disappear and all the evil in themselves may be loosed on what is good about them.

PANIC IN AN UNORGANISED GROUP

It is a mistake to think of panic as a sudden state of collapse from a previous condition of perfect self-control. It is in the extreme case a condition of uncoördinated impulses to action and unpremeditated actions, but there are intermediate stages in which some degree of response to group feeling remains and the ties of affection and duty still control behaviour.

The main difference between panic in an organised and an unorganised group lies in the greater resistance to panic in the organised and in the greater difficulty in re-forming emotional ties in the unorganised group. The organised groups—e.g., army, church, boy scouts, women's institutes—are usually also more or less homogeneous and with a leader; the unorganised groups—e.g., family, township—have no visible structure; they are united by various ideals and interests (sometimes in conflict) and the emotional ties that bind them are often weak. Their resistance to panic is therefore not so easy to strengthen by prearranged plan.

Since there is a tendency to the spontaneous formation of groups it is desirable that schemes (if and when devised) should not attempt to institute new and artificial groups unless it is beyond doubt that these will be effective.

In the preliminary stage of panic there is a tendency for the larger group loyalty to be abandoned in favour of smaller group formations. When this occurs those whose position in the administration leads them to think that they govern the people may regard the situation as out of hand, or even hopeless; whereas in fact it is a redistribution of group loyalty to meet mental strain. The situation only becomes dangerous when the smaller groups develop hostility to one another or to the central authority. (As a measure to reduce the risk of this the provision of many food depôts seems desirable; the fear of starvation—a dread from which no man is exempt in time of danger—is closer to consciousness than civilised man commonly realises.)

A sign that the anger of the population is finding outlet against a *common* foe is that of increased volunteering for national service. There is reason to think that the voluntary system, as distinct from conscription, acts as a conduit for the discharge of pent-up anger in the small groups from which the volunteer comes—i.e., the volunteer is the proxy in aggression for his group. Anti-panic schemes could utilise this mental mechanism but should weigh the risks of concentrating too much loyalty on the central authority (cf. totalitarian countries).*

GROUP BONDS AND SELF-CONTROL

Group ties are an acquisition, not an inheritance; they develop in infancy during the period of great dependence and are influenced by the child's need for help from its parents in obtaining control over its own impulses. Thus conscience is partly acquired from the environment and is developed for dealing with the instinctual part of the personality.

Group bonds and self-control are closely connected at the beginning of mental life, and in adult life in time of danger the close connexion is once more apparent. The early attitude to the parental authority is in later life displaced onto the Government (nation) or the G.O.C. (army), Pope (Church), &c., and these must fulfil in some measure the ideals attributed, in the unconscious, to good parent figures; these must (i) *govern*—i.e., keep order and dispense justice fairly—and (ii) *protect*—i.e., supply needs and distribute them fairly, giving equal opportunity to each member of the group.[1(d)] When these conditions are fulfilled the authority of the group is accepted as a good parent figure (in the unconscious); the members unite in respect for their authority and their friendly relation to one another is facilitated.

A group tie based on this equal treatment facilitates self-control. Envy (the wrecker of nurseries) if not mitigated even in later life by fair play leads to increase of hatred, which induces mutual distrust (the wrecker of societies). That is to say, self-control is easiest when there is no sense of injustice.

Self-control is aided in large measure by the "ego ideal"; the power of parental injunction and that of other superiors being vested in this controlling force.[1(b) 1(c)] There is both a "regulator" of conduct and a source of "inner support" in this internal mental factor, which from the first is closely related to social life.

One of the functions of the Authority is to *protect*. This concept must not be treated narrowly in a military or economic sense, but rather in the psychological sense. Physical danger and severe threat to economic security do not in themselves produce panic, provided that the individual has an "inner support" (self-confidence); but these factors may endanger the inner support by activating unconscious impulses which have to be kept in check—i.e., they increase the "internal dangers."

EXTERNAL AND "INTERNAL" DANGERS †

Air raids are likely to produce mental strain, arising from two sources—external danger and "internal danger."

Strain arising from External Danger.—The emotional response (fear) produced by an external danger is normally a signal to the mind to *do* something to remove the source of danger, and if the appropriate action is not adequate or is impossible, the emotional strain inevitably increases. It seems therefore, since

* A discussion of the democratic technique for dealing with discontent is to be found in the first leader of THE LANCET of Nov. 16th, 1935.

† The clearest account in non-technical language of "Internal Dangers" and the way in which they are overcome is given in "Love, Hate and Reparation" by Melaine Klein and Joan Riviere. London. 1937.

the civilian population cannot reach the source of danger and stifle it, that an increase of affect without adequate discharge is inevitable. This however is not the same as saying that there are no measures that can be taken to support the ego, or executive part of the mind, during the time of stress.

Strain arising from "Internal Dangers."—The part of the mind in which the internal dangers operate is *unconscious*—i.e., not accessible to conscious introspection. The important elements operating in this unconscious part of the mind are infantile impulses, phantasies and anxieties, and the emotional relation to people arising out of these impulses. Phantasies of attacking and being attacked occur in every child, and these phantasies—and the impulses which give strength to them—persist in the unconscious of the adult. They are activated by any factor which puts an increased strain on the ego or conscious executive part of the mind. Normally much energy from these infantile phantasies is exploited (sublimated) in work and in social life in useful ways, but in crisis the energy may be withdrawn in greater or less degree from socially useful employment in the external life and be diverted back to the reactivation of these early phantasies. For instance to the *risk* in an air raid of physical injury to the self, there may be added in phantasy a *certainty* of the most painful mutilation; this is so because the unconscious takes no reckoning of probabilities but goes to extremes—"all or none." This phantasy may so far absorb mental energy as to paralyse a person from taking precautions against the risk. But the mind may react against the impending panic by another device, and, reverting to a belief in omnipotence (a characteristic of infantile modes of thought), it may deny that there is any danger (omnipotence of the self), or may assert that the government (parental authority) is omnipotent and gives full protection; thus it may put implicit trust in everything the Government says, or even read into official statements ideas which the Administration does not hold. Such statements as the "100 per cent. efficiency of the gas-mask" are stretched to cover *all* kinds of gas-risk; balloon barrages and anti-aircraft defences are thought of as conferring immunity from attack, and so on. This attitude leads to omission to take proper precautions.

The stability of a mind which adopts *denial* of danger as its mode of defence against panic is liable to suffer sudden collapse and then it is too late to set in train the "manipulative activities"—i.e., doing something useful for the self and for others in an orderly way—which tend to strengthen the ego against panic.

The gravest of the internal dangers however arise from the mobilisation of aggressive phantasies directed against loved persons, through identification of the self with the enemy. The person thus feels himself to be in his heart an enemy to his "loved objects" and has to stifle a conflict within himself before he can face his own conscience within or the enemy without. It is not certain but it is in my view probable that this is the principal factor in loss of ego control when faced with dangers of the kind we are considering and therefore in the incidence of panic. The central point of this concept turns on the term "loved objects." This must not be taken narrowly as meaning only persons with whom one is in love, nor confined to present-day persons (here the peculiar "timelessness" of unconscious mental processes comes into prominence); it must rather be regarded as a relation of love and affection to all objects that are or have been endowed in the mind with the attribute of "goodness" (of being helpful, supporting, kind, love-worthy—objects to which one feels drawn). The term also includes ideals, causes, and beliefs which are felt to be nearly as precious as life itself. Because these impulses and phantasies and the objects to which they relate are unconscious it is impossible to predict the incidence of panic, and for the same reason it is impossible to take direct precautions against its outbreak. Inner dangers cannot be removed with certainty except by means which get into the inside so to speak; but once again this is not the same as saying that all measures against panic are useless. The internal dangers which we have all struggled with as children—and in lesser degree still struggle against—we have in the past for ordinary situations largely overcome: in extraordinary situations, such as air raids, it is reasonable to adopt so far as possible the same measures which earlier have proved more or less effective.

As objective experiences, air raids may be to most of the population new; but the essential elements—attack from an invisible foe, explosions, and poisonous gases and incendiarism—are so much in line with unconscious infantile phantasy that it is not expedient to regard air raids as new experiences subjectively. There is even something encouraging in this, for what once succeeded in allaying mental strain may be used to that end again. If we think of external dangers only, we can see no rational remedy; but if we consider also "internal dangers" we are not utterly without hope.

PSYCHOLOGICAL PRECAUTIONS

The essential causal factors of panic cannot be altered by any one measure, but attention to the contributory factors may lessen its incidence. Panic is not a new experience for any of us, but a veil of amnesia covers our most important experiences of it.

Four main factors increase mental strain: isolation from the group; absence of means of removing the source of danger or rendering it less harmful; unreliability of belief in Omnipotence; and distrust of Authority. In infancy these factors made mental strain worse and led under certain conditions to panic, which was then overcome by formation of groups, by mastery of the sources of danger (external and internal), by increased reliance on objective experience and diminished reliance on magical beliefs, and by coming to terms with Authority.

Membership in a Group usually reduces dread. Opportunity for friendly interchange and for a mutual "hate" against the enemy keeps away the feeling of complete isolation—which often rapidly passes over to feelings of worthlessness—and acts as a support for the ego. So far a truism; but the psychological consequence of this is not quite so obvious. The mere huddling together of people, even when they have occasion for a mutual "hate," does not constitute the most efficient group-psychology defence against panic. A group cannot be welded effectively by hate.

Panic is probably best allayed by doing something for those one loves. This is presumably the basis of the A.R.P. advice that people should stay in their homes and make them gas-tight, each person being given a duty. The group here is a "natural" one, that of the family; but this assumes that the family ties are good to begin with and will not be made worse by the strain of a raid. The stay-at-home policy (for which one could devise a slogan "Do not go out to seek safety. Make it—at home!") does not however take into account the degree of aptitude

for, and satisfaction from, manipulative activity (this varies greatly); it omits consideration of the mental state of persons with a claustrophobic tendency (the number of whom is many times greater than of those with manifest claustrophobia), and above all it does not take into consideration the fact that many find their group feelings roused more deeply and more readily in the company of their own sex, or in a society based on community of work or social interests.

The chief objection to the stay-at-home policy (apart from the fact that of the three dangers—high-explosive, incendiary, and gas bomb—at best it may afford some protection only from the last) is that the Government does not appear in this policy as an active partner. A great wave of hate and distrust will come if it fails, and as air raids are likely to be repeated this is a thing no government could or should risk. In time of danger, a government cannot rely on working up a spirit of loyalty if in the preceding months it has not won the respect of the public by showing an energetic and realistic endeavour to protect and a fairness in the distribution of the protection.

Such measures as evacuation of a part of the population, and the organisation of groups of householders into units for A.R.P. work, can be considered as regards the type of group formed and its effect on increasing resistance to panic. A group may be given a leader by the central authority but may nevertheless be leaderless from a psychological point of view. Though given a structure or hierarchy, in a moment of crisis the group may still behave in an unorganised way. A paper organisation which breaks down might be worse than none at all. Since the English are not particularly docile and still think of their home as their castle, the home-staying policy may be the best we can organise en masse, unless we are willing to spend much money and effort on very numerous, very well-protected shelters.

Mastery of the Sources of Danger.—As we pass from infancy to childhood and to adolescence we grow less afraid; not because we grow strong in the control of external danger but because we grow less afraid of the sources of internal danger—our own aggressive impulses. In this process of mastering anxiety, doing things, particularly for others, plays a significant part. In time of crisis the more primitive mental reactions again become important, and the opportunity to be vigilant on behalf of others and to get busy oneself strengthens the mind to resist panic. Therefore A.R.P. instructions which lay stress on active measures of preparation will tend to reduce panic. The mastery of the Sources of Danger should not, therefore, be considered solely in terms of dowsing incendiary bombs or shooting down bombers, but as covering all measures which give self-confidence and divert attention *outwards*. The allotting of duties within the shelter (of whatever kind it be) sets the mind going in an active and constructive direction and so lessens the risk of uncontrollable dread; even if the chance of doing anything "100 per cent. effective" is small, nevertheless the doing something in the right direction tends to diminish the strain of mind which comes from a purely passive resistance to apprehension.

Diminished Reliance on Magical Beliefs.—In time of mental stress the mind often tends to rely on magical beliefs. Danger lies here in two directions: first, the magical remedy against danger may be suddenly doubted—i.e., the resistance to panic may suddenly collapse; secondly, the reliance on a talisman, if this is provided by an Authority, may lower the capacity for group activity or the full utilisation of group bonds.‡

"I, in my mask, am secure: the devil take the hindermost!" is more likely to be adopted as a way of thought if the gas-mask is declared to be "100 per cent. efficient"—i.e., is claimed to be perfect. 100 per cent. efficiency is not in any case probable; it requires an effort of mind to contemplate it rationally, but many will jump at the idea as a consolation. Is that consolation to be denied to these nervous people? The question is not well put: it is rather "What measures will best meet the craving for security in a situation of great insecurity?" No one would stop a man practising his private magic; if he needs it he will make a talisman of his own; but the question is, what is best for the Government, public authorities, and scientists to do when faced with a demand for what in fact is magic? If there was likely to be only one occasion of panic the Government intent on prosecuting the war could afford to take the risk (even in democratic England) of adopting the attitude of omnipotence and omniscience by saying, "Obey me and you will be safe!" But air raids may be repeated, and therefore from a military point of view the Government would be unwise to lend too much of its prestige to magic; for magic is an unstable ally. Just as those in need of talismans (and other objects of private protective ritual, such as a horse-hair tied round the finger) will make them for themselves, so those in need of the belief in an omnipotent governmental authority (parent figure in the unconscious mind) will in time of crisis exalt the Government to a position of a Protective Deity, and nothing can stop them from doing so. But it is wiser to encourage reliance on appropriate action rather than on consoling beliefs. In my opinion therefore the Government should give a lead in rationality; for example not saying "gas-masks are 100 per cent. efficient," which no reasonable man will believe, but that they give protection for so many hours in the concentration of such and such likely to be met in the case of the probable gases in an air raid; and stating the probable proportionate risks of high-explosive, incendiary, and gas bomb. The public in fact should be instructed to think in terms of relative quantity, of more-or-less (reason, conscious mental action) rather than of all-or-none (blind belief, unconscious mental action). It is no valid argument that the public wants plain statements and that therefore the niceties of relative quantities are likely to lead to mere confusion of mind. The risk we are considering, and which has to be combated, is a state in which confusion of mind is completely dominant, and the aim must be to strengthen the controlling forces in the mind. These find support in action—mental action no less than physical. The publication of simple but accurate statements of the various risks, of detailed reports on the effects of aerial bombardment in Spain and other areas of modern warfare, and of the ways in which risks have been effectively dealt with, so far as these are known, therefore seems desirable as an Air-Raid Precaution.

Besides giving a lead in protection from an external danger another way of assisting in panic-prevention is open to the Government. It can contribute to the sense of security by providing a quite different kind of "internal support" from that we have been considering, but one of great psychological importance

‡ The medical man may be asked by his patients for advice about analgesic drugs in case of injury. The giving of such drugs may be attended by psychological risks in unstable persons and the matter should be considered with an eye to mental as well as physical effects.

—namely, food. The confidence that even though the physical structure of civilisation (railways, &c.) may be badly smashed up, this essential support will be distributed regularly to each individual and fairly as between the various classes in the community, will go far to create a solid group spirit and a good relation to the Government.

The Relation to Authority.—Mention has been made of the danger of blind submission to Authority; but in time of crisis complete emotional independence from Authority is for most people neither possible nor desirable: there is need for leadership and a desire (not necessarily prominent in consciousness) for guidance in action. This favours the quick and loyal submission of the individual to the Group or Commanding Officer and two things are required—a leader who will really lead, dealing fairly between all members of his group, and a group with which the individual can readily identify himself. These are the factors required to bring stability to an unorganised group and so to reduce the risk of panic. Training in submission to orders is an advantage to rapid group-formation, and such activities as fire-drill practice, "physical jerks," boy-scout and girl-guide work, and military drill all work to this end.

* * *

There are probably no really effective specific remedies. Two which have been given much consideration as a recipe against fear may be mentioned: Totalitarianism (even if acceptable in this country) is a brittle crutch; and Religion is apparently easier to prescribe than to dispense.

In conclusion and to repeat: panic in the adult is not a new experience; it is a recrudescence of an earlier state which is screened from us. This gives some of the nameless horror to panic, but it also gives a key to reducing its incidence. Unable to attack its specific causes we can endeavour to reduce the contributory causes, and can follow the ways taken to overcome the periods of panic when our minds were immature: by formation of groups, by manipulative activities, by turning slowly from blind and magical beliefs to a more reasoned interest in the world around us, but above all by acquiring the capacity to recognise and control our own egoism and impulses of hate. On this last depends the success of group-formation and group activities which always exercise a large influence in checking the outbreak of panic.

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2. — (1921) Group Psychology, London.

PARIS

(FROM OUR OWN CORRESPONDENT)

GONORRHŒA AND THE FRENCH BIRTH-RATE

THE many discussions within the Academy of Medicine on the subject of the low French birth-rate have brought to the surface a strange assortment of things, from statistics about gonorrhœa to quotations. The most dramatic of the latter hails from Georges Clemenceau at the time of the ratification of the Treaty of Versailles. This distinguished, in a political sense, member of the Academy of Medicine said that if France dispensed with large families, all the safeguarding clauses of the Treaty, and all the cannons taken from Germany, would not save her from annihilation. As for the disconcerting reality that the death-rate has been higher than the birth-rate during the last three years, opinions seem to have varied with regard to the relative importance of the causes of the decline of the latter. Dr. Marfan would have it that the causes were so largely non-medical that the Academy of Medicine was impertinent, in Parliamentary jargon, in attempting to tackle this problem; and he felt so strongly in this sense that he was not prepared to give his vote in support of the conclusions formulated by the Academy's commission on denatality. On the other hand, Dr. Béclère found one key, if not *the* key, to the problem in the obscure gonococcus whose activities have recently been much illuminated by the hystero-salpingographic studies of Claude Béclère and Elie François in the hospital service of Prof. Couvelaire. They have shown that nearly three-quarters of the women coming to this service on account of sterility suffered from changes in the Fallopian tubes betrayed by no clinical signs. Sometimes the obstruction of these tubes was complete, and this was so in half the cases, whereas in a quarter the obstruction was only partial. The evidence was clearly indicative of infections contracted during sexual intercourse, the Fallopian tubes becoming infected and obstructed early in marriage or as a sequel to an abortion or confinement at term. Béclère's remedies for this state of affairs included as a matter of routine a very careful prenuptial medical examination which might lead to the discovery and cure of lingering foci of gonorrhœa in the male urogenital tract.

HUMAN VIVISECTION AND THE LAW

The other day a middle-aged gentleman, hitherto at large, was urgently invited to enjoy the hospitality of the French Republic for a generously long period. Not liking this hospitality he offered his body to anyone willing to experiment on it, even to the point of inoculating it with the germ of cancer. But no one has yet come forward to claim the body.

What of the legal implications of such an offer? Could it have been accepted without legal risks to both vivisector and vivisectee? The well-known French medico-legal expert, Dr. Paul Boudin, answers this question in the negative. It needs, of course, no great legal perspicacity to understand that what begins as vivisection might merge imperceptibly into a post-mortem examination. But even if the vivisector failed to kill, and only injured the subject of his experiments, the latter might yet sue the former for damages and would, in Dr. Boudin's opinion, be successful in his suit. The defendant would be held up to obloquy as one who, knowing full well what might befall his victim, had exploited his ignorance and generosity to further his own ends, such as personal ambition. Even if the vivisectee could not or did not bring the case to court the Republic itself might step in and hold the vivisector responsible for the unhappy consequences of his vivisection. The outlook would then be quite sombre for the vivisector, however many affidavits he might hold, duly sworn to and signed by his victim. For the Republic would insist that this act had been contrary to law and order and to public morals.

THE FRENCH CANCER LEAGUE

On May 17th the *Ligue française contre le cancer* celebrated its twentieth anniversary at a meeting attended by many eminent persons and presided over by Monsieur Justin Godart, former Minister of Public Health. In a survey of cancer research in general and of the League's activities in particular,

Dr. Antoine Béclère showed how enormous have been the advances made during the past century with regard to a disease hitherto considered with hopeless pessimism. From being an inevitably fatal disease, cancer has become an eminently curable one, provided certain elementary conditions are fulfilled. In the course of its activities, the League has compiled more than 30,000 personal records, some of which cover half a score of years of observation since the patient was cured by some treatment or other. The staff of the League paid some 300 visits in 1937, collecting information and bringing relief and advice to the patients visited. The League publishes a quarterly bulletin, pamphlets, and posters, organises lectures, helps to finance research workers, and contributes to the campaign against cancer in various other ways. It is hoped that the holding of a cancer week and the sale of a special stamp in November of this year will help to ease the League's war chest whose contents have been somewhat depleted by the recent general financial stringency.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

AUTONOMIC REFLEXES

THE Morison lectures were given last week at the Royal College of Physicians of Edinburgh by Dr. E. Arnold Carmichael, director of the neurological research unit at the National Hospital, Queen-square. His subject was the study of reflex activity of the human autonomic nervous system, and he began by speaking of the various methods of investigating the activity of this system. He referred particularly to the work of Sir Thomas Lewis and showed how the local skin reactions that Lewis described are dependent on axonic responses. He then turned to the intricate methods that he and others have evolved for investigating the central reflex activity of the autonomic nerves. He has used very delicate methods of recording the volume and the temperature of the digits and his usual method is to make a record simultaneously from one digit in each of the four limbs. These methods are so sensitive that a slight stimulus such as taking a deep breath or the application of a piece of ice to the forehead at once leads to a fall in the record of the volume of the digit, indicating vasoconstriction. Exposure of one limb to heat also produces a rapid rise in the temperature of the other limbs before the rectal temperature is altered; indeed the peripheral vascular dilatation may actually cause a fall of rectal temperature. From his experiments Dr. Carmichael has proved that these reflexes are central. They may to some extent occur at the level of the spinal cord, and the reflex contraction of the peripheral arteries following a deep breath probably occurs through the medulla; but there is evidence to show that an important, and perhaps the most important, centre for reflex vasomotor control is situated in the hypothalamus. In his studies of brain disease Dr. Carmichael was unable to find any evidence that lesions of the cerebral cortex interfere with the reflex activity of the autonomic nervous system.

TYPHOID IN HAWICK

The outbreak of enteric in Hawick is now subsiding. The number of cases admitted to hospital during the week ending April 30th was 7; in the week ending May 7th it was 34; in the week ending May 14th it was 52, while in the following week it was 17. Very extensive investigations have been made in an attempt to determine the cause of the epidemic, and it is reported that a carrier has been found who is an employee in a coöperative store. This carrier, it is said, had been handling two or three different types of foodstuff which had been used by every case that has so far been traced. There has not at any time been any indication that the water-supply is contaminated.

PHYSICAL WELFARE OF EDINBURGH STUDENTS

I have previously referred to the munificent gifts and schemes of Dr. J. D. Pollock for the benefit of Edinburgh University and especially of its students. While these schemes have not yet been worked out in full detail there is no doubt that extensive plans are being made by the university authorities for the physical education of the students. It is proposed to spend about £20,000 on accommodation for this purpose, half of which it is hoped will be provided from the University Grants Committee. The purpose of the schemes will be to improve the physical and social well-being of the student-body, and to this end the students themselves will coöperate with the university authorities. Thanks to Dr. Pollock's benefactions these developments will place no new burden on the existing revenue of Edinburgh University.

IRELAND

(FROM OUR OWN CORRESPONDENT)

THE HOSPITALS SWEEPSTAKES

THE draw for prizes in the Hospitals Sweepstake in the Derby was held last week. The total receipts were a little lower than those of the sweepstake on the Derby of 1937, but higher than in 1936 or 1935. The amount accruing to the funds of the hospitals will be approximately £437,500. The total amount collected for the hospitals in the twenty-four sweepstakes that have now been held is over twelve and a half million pounds, and of this sum £5,345,113 has been distributed, the remainder lying in the hands of the National Hospital Trustees. The plans for hospital development in Dublin, recently approved by the Minister, will make many calls on this residue, but there appears to be no reason to anticipate that money will be lacking for this purpose, or for the carrying-out of whatever further schemes may be required to complete the hospitalisation of the country. Among the minor purposes for which sweepstakes monies have been made available in recent years are the establishment of a Medical Research Council with a reasonable amount of funds at its disposal and the establishment of a Hospital Library Council empowered to give or lend books to hospitals. Both schemes are working satisfactorily

THE LANCET 100 YEARS AGO

June 2nd, 1838, *p.* 332.

From a discourse on diagnosis, by Dr. William Macdonald of Greenock.

. . . The student of medicine should not forget that differences of opinion exist in relation to almost every subject of research, and that no authority for learning will furnish a sufficient security from error; all opinions, therefore, and more particularly all medical opinions, may be warrantably questioned, and none are to be received unless the arguments adduced to support them be found solid and convincing.

GENERAL MEDICAL COUNCIL

SUMMER SESSION, MAY 24TH–28TH, 1938

(*Concluded from p. 1244*)

Penal Cases Reported by the Dental Board

THREE cases were brought before the Council after hearing by the Dental Board with the recommendation that the name ought to be erased from the Dentists Register: (1) Thomas Gordon, registered as of 61, South Clerk-street, Edinburgh; (2) Richard John Atkinson Ainsley, registered as of 79, Duke-street, Leith; (3) William Welch, registered as of 159, Ashted-row, Birmingham. Each of these was registered under the Dentists Act, 1921, and each had been found by the board guilty, with reference to dental letters issued by approved societies, of attempting to obtain money for work which had not in fact been performed. None of the respondents appeared, and the President announced in each case that the Council had judged the respondent guilty of conduct infamous or disgraceful in a professional respect and directed the erasure of his name from the Dentists Register.

RESTORATION TO DENTISTS REGISTER

After consideration in camera the President announced that the names of Aaron Leslie Barnett and Robert Marley had been restored to the Register.

Charges against Medical Practitioners

DRUNKENNESS AND MOTORING OFFENCES

At the summer and winter sessions last year five doctors were found guilty of infamous conduct as a result of police-court convictions for drunkenness and motoring offences, and sentence was postponed until the present session to enable them to produce testimonials as to their conduct in the meantime. All these cases were reconsidered by the Council, together with the testimonials produced. In one case the respondent was not present but was represented by his solicitor who put in a medical certificate to account for his absence. In another case the respondent was neither present nor represented; he wrote that he could not afford to come to London and could not produce more testimonials; his case was further postponed for six months. In all the other cases the Council decided not to erase the name.

Eight new cases related to similar offences. In one the Council decided not to erase the name; in the others the charge was found proved and judgment postponed, subject to the production of the usual testimonials.

A BREACH OF TRUST

The Case of Robert Wilson Todd, registered as of Shotley House, Leven, Fife, M.B., Ch.B. 1922, U. Glasg., who had been summoned to appear before the Council on the following charge:—

That you were convicted at the Sheriff Court of Fife and Kinross at Cupar, on Feb. 1st, 1938, of the following offence—namely, of uttering as genuine medical cards each of which bore the name of the doctor to be signed as agreeing to the transfer to your list, each such signature being forged, and were fined £25.

Dr. Todd attended, and was accompanied by Mr. Oswald Hempson, solicitor, acting on behalf of the Medical and Dental Defence Union of Scotland. Mr. F. P. Winterbottom, solicitor to the Council, set forth the facts of the conviction, stating that the signature of the doctor had been forged on nine panel cards. There had been no canvassing; six of the patients had belonged to one family to whom respondent was family doctor. He had been almost bound to be discovered. The monetary gain could not have been more than fourteen shillings.

Dr. Todd, examined by Mr. Hempson, said he had purchased a practice of 700 panel patients in 1924 and had doubled the panel since then; he was married and had two young children. He had been very overworked during 1937 and had had a serious accident in March; his family, also, had all been ill. All the patients in question had required immediate treatment and wanted him to give it them. He recognised his fault, but had been moved by the distastefulness of sending a sick person to ask a former doctor for permission to transfer. No action had been taken by the Scottish insurance authorities.

In reply to the legal assessor, he said that there had been previous difficulty in getting consent to transfer in some cases; patients had complained.

In reply to Sir Kaye Le Fleming, he said he had believed that he was not entitled to treat a patient who was on some other doctor's panel.

Mr. Hempson put in statutory declarations from patients and testimonials, and stressed the case as one of folly rather than intentional wrongdoing. A local committee, wholly uninspired by respondent, had prepared for the Council a petition to which 2189 signatures had been obtained, all patients of respondent's.

The President said that the Council regarded Dr. Todd's action as a very serious breach of the trust imposed in doctors by Parliament, and did not consider that the circumstances constituted an excuse. Judgment, however, would be postponed for two years.

TWO CASES OF ALLEGED ADVERTISING

I

The Case of Henry Nunan Collier, registered as of 2, St. Peter's-close, Joiner's-lane, Chalfont St. Peter, Bucks, L.S.A. Lond., 1903, who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner: (1) you are or have been associated with or employed by the Institute of Endocrinology, 1, Baker-street, London, W.1, which to your knowledge and with your sanction and acquiescence has sought to attract patients by systematically advertising in the public press, and in particular so sought by means of an advertisement published in the *Evening Standard* newspaper in August, 1937; (2) by means of the said advertisement you obtained Bryan Heber Percy as a patient; (3) by your presence, countenance, advice, assistance, or coöperation as an associate or employee of the said Institute, you knowingly enabled an unregistered person—namely, one Harpman—to attend, advise, and/or treat patients, and in particular to attend, advise, and/or treat the said Bryan Heber Percy, in respect of matters requiring professional discretion or skill. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

The complainants were the London and Counties Medical Protection Society.

Dr. Collier was represented by Lord Reading, K.C., and Mr. Salter Nichols, counsel, instructed by Messrs. Samuels, solicitors. The complainants were represented by Mr. W. A. Macfarlane, counsel, instructed by Messrs. Le Brasseur and Oakley.

Mr. Macfarlane said there was no dispute as to the essential facts. In his first reply respondent had said he wished his name removed, as he did not consider he was doing anything against the honour of the profession. There was no denial that the Institute advertised, though it was true that respondent's name had not been used in any advertising scheme. The Institute was run by a manager named Harpman,

said to be assisted by a staff of English qualified doctors and nurses. Mr. Macfarlane put in a number of the advertisements from the *Evening Standard* of July and August, 1937, and February and March, 1938. Mr. Percy had seen that of August 9th, 1937. It read: "If your glands functioned normally, you would not suffer from . . ." (a long list of ailments). "Therefore consult the medical staff of our Institute and they will, after thorough examination, make a diagnosis and inform you what is the cause of your complaint." The advertisement added that treatment could be obtained in any town in Great Britain; another entry stated that 1860 patients had been treated during the past year. Mr. Percy, who suffered from dyspepsia, had called at the Institute and been given a pamphlet, which repeated the terms of the advertisement. He was then taken in to see Mr. Harpman, who asked questions as to his circumstances and symptoms and recommended a thirty-guinea treatment. Mr. Percy had paid half on account, and been taken to another room where two men in white coats examined him and took specimens from him; one of these was respondent, who had written, on the notepaper of the Institute, asking a nurse to give Mr. Percy a series of injections. Apart altogether from the advertising element Mr. Macfarlane submitted that the conduct of the Institute was open to many objections: the claims made were far too high; the pamphlet stated that treatment could be given anywhere; if the injections could not possibly do harm, it was a fair inference that they could not do good. Either they were harmless and ineffective, in which case it was obtaining money on false pretences; or they were potentially dangerous, in which case they ought not to have been sent to distant towns for administration by a nurse.

Mr. Heber Percy said that he had suffered from dyspepsia and had not had a family doctor. He described his visit to the Institute. He did not remember whether the nurse-receptionist had said "Mr." or "Dr." Harpman would see him. Mr. Harpman had elicited the medical history, and weighed him, commenting that the weight was too low. He had said that the trouble was serious and would probably necessitate an abdominal operation in about two months' time. He had said that "prevention was better than cure," that he could do something about it, and that he had treated similar cases. He had further said "I don't want to persuade you either way. You can always go and see a Harley-street specialist if you want to." Witness, having decided to have the treatment, was told that it would consist of 25 daily injections, which could be given locally. The second room he was taken to resembled a surgery; Dr. Collier took a sample of blood. There had been some difficulty in finding anyone to give the injections in Grantham, and he had suggested Nurse Pacey. In addition to the injection, he had received tablets from the Institute; these had given him relief and he had suggested their sending some more. He had received no benefit from the injections. He had refused to pay the balance of the fee because of the tone of the letters asking for it. In the end he had had back in full all that he had paid, after withdrawal of a county court action by the Institute. In the course of preparing for the action, the Institute had sent witness a copy of his medical history sheet, containing answers to some 34 printed questions. Mr. Harpman had asked him these questions.

Cross-examined, he agreed he had only seen Dr. Collier once, and what the doctor had done was not to diagnose the case but to take samples and make tests. He had never seen the name Collier in any printed matter, and had first heard the name after instituting proceedings.

Re-examined, he said he had consulted a doctor in Grantham before the proceedings began; this doctor had put him in touch with a firm of solicitors.

Mrs. Frieda Pacey, a State-registered nurse, testified to receiving a letter signed "H. Nunan Collier, L.S.A. London" beginning "Dear Nurse, My patient, Mr. Percy, needs a series of daily injections." She had given twelve intramuscular injections on alternate nights. She did not know what they contained, other than the statement in the letter that they were "gland extracts." She had ascertained that the writer of the letter was on the Medical Register.

Dr. F. J. Jauch, a Grantham practitioner, testified that Mr. Percy had consulted him for the first time in October, 1937, suffering from nervous dyspepsia. He had given advice and treatment; there was nothing to indicate operation.

Cross-examined, he thought it remotely possible but unlikely that Mr. Percy's condition was due to a condition of the pancreas; he had not complained of impotence.

Respondent, examined by Lord Reading, said he had been qualified since 1903; up to 1914 he had been in private practice. He had joined the R.A.M.C. at the beginning of the war, risen to the rank of major, been wounded and been discharged with a disability pension. He had practised privately in London and been employed by the Ministry of Pensions from 1919 to 1924. Then he had practised in Bloomsbury until 1933. He had gone to the Institute of Endocrinology in May, 1937, as a result of answering an advertisement in the *Times*. After interviews and references he had been offered a post. He had been interviewed by a "qualified" medical man and had had a discussion with him; that doctor was still there.

In reply to the President, he said he had not used the word "registered" and had not consulted the Register until later; he had not found the name on the Register.

In reply again to Lord Reading he said that his duties consisted of making diagnoses, and giving ultra-violet and X ray treatments. He had nothing to do with making up the glandular prescriptions given. He helped in prescribing and knew what they contained. Pancreatic gland was one of the standard preparations used; either he or Mr. Harpman decided which gland should be given.

In reply to the legal assessor, he said he did not see all the patients; he knew that Mr. Harpman saw some and the unregistered doctor saw some, and prescribed the injections.

Further examined, he said he knew nothing whatever about proceedings against Mr. Percy by the Institute and the counter charge of fraud. He had not the slightest idea at first that the Institute was advertising in the public press, but had seen one advertisement towards the end of last year. He knew the brochures describing the work; his name did not appear anywhere in the Institute's literature. It was his view that the Institute was doing very, very valuable work.

Cross-examined, he agreed that his letters to the Registrar set out what he felt. The medical staff of the Institute consisted only of himself and the other doctor mentioned. Mr. Harpman was a scientist of many years' experience. Witness had come to the conclusion that Mr. Harpman knew his work. He had been quite under the impression that

his own work at the Institute was within the limits of the Council's Warning Notice, with which he was familiar. When he had seen the advertisement, he had not given it a thought because there had been a registered medical man connected with the Institute for years. He denied having seen Mr. Heber Percy at his first visit; he had seen him simply to take his blood pressure on his second visit. The bacteriologist had taken a blood and urine sample. He did not know who had prescribed for him. He had signed the letter to the nurse. He knew what the injections were but had not prescribed them. It was a common-form letter. He did not sign all such letters. He had never seen the medical history sheet at that time. He had not intended to mislead the nurse. He never prescribed for patients he had not seen. Some of the injections were made up at Harpman's own laboratory; he had never been there. Possibly some were bought. He could not say how they were standardised or who did that. He had taken Harpman's word for it.

Answering the legal assessor and members, he said he had made no inquiries about what the pamphlets were being used for. He was paid a salary—no commission. He saw patients who came to the Institute, and did not know or inquire how they heard of it. He spent from 10 to 6 at the Institute and had now no private practice. He had twice received Warning Notices, and had asked to have his name removed from the Register in order to be free. If he were off the Register he would continue his association with unregistered practitioners and with an institution that advertised. If he stayed on the Register he did not know what he would do.

The Council found the charge proved and directed the erasure of Dr. Collier's name from the Register.

II

The Case of John Herbert Hannan, registered as of 39a, Courtfield-gardens, London, S.W.5, L.M.S.S.A. Lond., 1921; M.B., B.Chir. 1926, M.D. 1927, U. Camb., who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner: (1) you are or have been associated with or employed by Messrs. Miladin Limited, proprietors of the Rheumatism Clinic, 236, Brixton-road, Brixton, S.W.9, who to your knowledge and with your sanction and/or acquiescence have sought to attract patients by means of advertising in the public press and/or by means of canvassing; (2) you obtained Joseph Charles Hall as a patient by means of (*a*) a card sent by or on behalf of the said Messrs. Miladin Limited, without any request of his, and received by him on July 9th, 1937, at his residence, 15, Ribblesdale-road, Streatham, S.W.16, the said card being imprinted as follows:—

Proprietors: MILADIN LTD. Tel.: RAV. 3202.
RHEUMATISM CLINIC
236, BRIXTON ROAD, BRIXTON, S.W.9
FOR TREATMENT OF
RHEUMATISM
ARTHRITIS
SCIATICA
NEURITIS and
ALLIED COMPLAINTS
CONSULTATION
5/-
& TREATMENT
by REGISTERED MEDICAL PRACTITIONERS
TREATMENT on THURSDAYS 2 p.m.–5 p.m.

(*b*) a reprint of an article entitled Sciatica Cured in Ten Minutes, published in the *News of the World* newspaper on July 12th, 1936, which was enclosed in an envelope with the said card. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

The complainants were the Medical Defence Union, who were represented by Mr. Oswald Hempson, solicitor.

Dr. Hannan was represented by Mr. H. Malone, instructed by Kingsley Wood, Williams, and Murphy, solicitors.

Mr. Hempson, opening the case, said that in July, 1936, the *News of the World* had printed an article lauding a new and remarkable treatment for sciatica, obtainable at a West End clinic where four doctors were working. The treatment was an injection of a solution of salts which separated the nerve-fibres, parted adhesions, and produced immediate cure. The article further claimed that each of the four doctors was a specialist, and that every patient was thoroughly examined all over. That article had attracted the attention of a great number of persons, and some of the replies had been forwarded to the Medical Defence Union. At that time sufficient evidence had not been obtainable to warrant complaint to the Council. In July, 1937, however, Mr. Hall, a clerk to Messrs. Hempsons, who had made inquiries at the clinic, had received a follow-up communication as set out in the charge. He had made an appointment and been examined at the clinic by respondent, who had made no disclaimer when the *News of the World* article was mentioned.

Joseph Charles Hall testified that he was a clerk employed by Messrs. Hempsons, that he had made certain inquiries at the clinic in 1936, and that in 1937, without any request on his part, he had received a circular as stated in the charge. He had attended the clinic on July 31st; a Mr. Morland had asked him to go into the consulting-room, and there had introduced him to Dr. Hannan, who had taken notes of his medical history, tested his grip, and examined his chest. Dr. Hannan had then injected distilled water into both arms and tested the reaction, and then said the complaint was primarily nervous and not rheumatic; the clinic could do nothing for him. He had produced the *News of the World* article and Mr. Morland had said that was due to Dr. Leitch and that Dr. Hannan had had nothing to do with it. He had paid five shillings. Mr. Morland had said that Dr. Hannan was a first-class man with a place in Harley-street, and advised him to do what Dr. Hannan said.

Cross-examined, he said he had not found or tried to find out who had inserted the effusion in the *News of the World*; he was not aware that it had been inserted by Dr. N. Leitch, M.R.C.P. The postmark on the envelope containing the follow-up was "Bromley." Asked to identify Miss Parker as the lady he had seen at the clinic, he was unable to do so. He had seen a young lady in the waiting-room. He still maintained that Dr. Hannan had injected a fluid into his arm without any warning, had said it was distilled water, and had shown him the syringe. He had paid the five shillings to Mr. Morland in the waiting-room. He insisted that the remark about the *News of the World* article was audible to Dr. Hannan though it had been addressed to Mr. Morland.

Mr. Malone, opening the defence, said that the first relevant date was July 12th, 1936, when the effusion appeared in the *News of the World*; Dr. Hannan had never heard of this article before the present proceedings. On April 17th, 1937, Dr. Hannan had advertised in the *British Medical Journal*, and had received a reply signed "J. Neil Leitch, M.D., M.R.C.P.," saying that Dr. Leitch required a part-time assistant in connexion with some rheumatism clinics in the London district. April 28th was the first attendance of Dr. Hannan at any of the clinics.

On May 20th Dr. Hannan had written to the Registrar as follows:

In answer to an advertisement in the *British Medical Journal* I was employed by Dr. Leitch of 64, Great Cumberland-place, W., as part-time assistant in running clinics, which turned out to be for rheumatism. I do not feel happy regarding the ethics of the matter. The enclosed correspondence speaks for itself. I should deeply appreciate your advice whether I should carry on or not.

Enclosed with these letters were a card of the clinic, stating the consultation fee, five shillings; Dr. Leitch's actual letter to him about his appointment; and a further letter from Dr. Leitch about vaccine and vitamin preparations. To this he had received in reply:

The Registrar begs leave to acknowledge receipt of letter with enclosures, which shall receive attention.

On June 10th Dr. Hannan, having received no reply, wrote again to the Registrar:

Dear Sir,

Re assistantship to Dr. Leitch

As I have no answer to my letter, and am not feeling too happy about the whole ethical position of these clinics, I have tendered my resignation.

Yours truly,
J. H. Hannan.

On June 13th Mr. Morland had written to Dr. Hannan, sending him a holograph draft agreement between Miladin Ltd. and a doctor appointed as assistant physician. Mr. Morland wrote that Dr. Leitch had consulted the General Medical Council, and also had taken counsel's opinion to make doubly sure that there was nothing to prevent any doctor being appointed consulting physician to a company or clinic, and engaging assistant physicians, provided that the company did nothing which was against the rules of the British Medical Association.

Dr. Hannan had insisted on adding to the agreement, and had himself written into it, a clause stating that it might be terminated if the General Medical Council decided that his employment was unethical. Dr. Leitch had refused to sign it with this clause in.

On July 14th Dr. Leitch had written to Mr. Morland saying he would like to see him some time at No. 64 Great Cumberland-place because Dr. Hannan had written him a rather disturbing letter. This enclosed a letter from Dr. Hannan saying:—

The best thing we can do is to get the authority of the Registrar of the General Medical Council before you spend any more money. If your company employs only registered medical practitioners, then the Registrar must have the final say in what we can do or cannot do. I suggest you ring him up at Langham 2727. Counsel's opinion is of no value, nor is that of the B.M.A.

Dr. Hannan, examined, said that he had at the first interview taken up the ethical position with Dr. Leitch, and had received the assurances subsequently repeated in Mr. Morland's letter. Dr. Leitch had said he had had spa experience and was concerned with the difficulty of getting rheumatism treatment for poor persons. Dr. Hannan's duties were to examine, diagnose, and refer the patients to their own doctor—nothing else. When he had attended at the clinic he had seen that each patient was given a card. On this card, he found, were the words "Fee 5*s*." He had felt and said that this was irregular and had resigned. Subsequently a long argument had ensued, Dr. Leitch declaring that respondent was letting him down. Therefore Dr. Hannan had returned to the clinics, after being away for three weeks following his resignation on June 10th. He had had an absolute assurance given him that the cards would no longer be issued. He had kept a watch, and had not seen any more cards during this period.

He could not understand the suggestion that he had given an injection; there was no truth in it. Possibly Mr. Hall had got confused with the tests for hot and cold. He had not injected him in either arm, he was sure, though he could not remember Mr. Hall from other patients a year ago. He would have tested him with a needle in both arms, and quite possibly he had used a hypodermic needle with syringe attached, but not with any injection. He absolutely denied hearing any discussion about the *News of the World* article. He knew nothing about the receipt. He said he had no idea how the clinic expected to get its patients. He was not interested in the success of the clinic as he was merely paid a fee. Of course, he would lose the fee if the clinic closed down. He had not liked the look of the cards, because they had looked like invitations. He had inquired of all patients the names of their family doctors, but many patients had refused to give the name. He could not specifically recollect asking Mr. Hall for the name of his doctor but pointed out names of such entries in his books. He had made no inquiry about publicity as he had seen no evidence of it. There was a board outside the clinic saying "Rheumatism Clinic" with no mention of the proprietor.

Re-examined by his counsel, he said he had looked up Dr. Leitch's qualifications in the Medical Directory and had formed the opinion that a man with such qualifications would be unlikely to associate himself with any unethical practice. He had written to the Council without the knowledge of Mr. Morland or Dr. Leitch, and before resuming work had, either in person or by a member of his household, telephoned to the Council six times in an attempt to get advice. He had been told by a male person, whom he had taken to be the Registrar, that if there was no advertising he would be in order. He had complained about the cards and Dr. Leitch had assured him that they had been withdrawn.

On the recommendation of the legal assessor, the Registrar of the Council, Mr. Michael Heseltine, and every member of the male staff who had been employed in June and July, 1937, then gave evidence that they had no recollection of any conversation with Dr. Hannan or anyone on his behalf. In answer to Mr. Bishop Harman, who asked whether it was the habit of the office to answer either general or particular questions on ethical matters over the telephone, the Registrar said that it was impossible always to avoid so doing. Cross-examined by Mr. Malone, he said that no reply had been sent to the inquiries in Dr. Hannan's letters. The first had coincided with the eve of the summer session of the Council, which entailed a great volume of work, and he had taken the second letter to indicate a decision by the practitioner which would dispose of the matter. It might well have been that someone in the office, being asked on the telephone a question relating to correspondence about clinics, had said that clinics were all right so long as there was no advertising. Mr. Hempson asked whether anyone but the Registrar was authorised to advise inquirers. Mr. Heseltine replied, "Nearly all of us have to do it from time to time." In answer to Sir Robert Bolam, he said that a letter of the kind in question was not answered on the responsibility of any officer of the Council but only with the authority of the President, who, apart from inquiries before the Council as a

whole, would give such advice as he thought fit to practitioners on this kind of question.' If the first letter had not arrived at that particular time (just before a half-yearly session), he would have hoped to draft a reply to be submitted to the President for his approval; the reply as approved would then have been sent to the practitioner. Such a letter was not to his knowledge submitted to the Council during its session. The Council would only deal with a formal complaint.

Mr. Malone then called Mr. Charles Morland, who said that he had formed a company to run clinics on continental lines, which he had studied. He had become acquainted with Dr. Leitch through an advertisement in the *Times*, and had seen him at 64, Great Cumberland-place and discussed the formation of clinics. Dr. Leitch had produced a list of several hundred names from replies that he said had been sent in answer to the "write-up" which had appeared in the *News of the World*. The list was an obvious potential source of profit. Dr. Leitch said he already had three clinics, and was able to do so because they were run under the auspices of the National Institute of Nutrition. He had inspected the clinics and agreed with Dr. Leitch that they should be advertised on the screen at a picture theatre and in a suburban newspaper, and proposed that when they had been worked up the old ones should be closed and new ones opened. He had never seen Dr. Hannan until April 28th, when a new clinic had been opened at Bromley. It had been arranged that Dr. Leitch should attend this opening, but Dr. Hannan had in fact appeared instead. The respondent had asked him whether he had been with Dr. Leitch into the question of whether the cards were ethical. Witness had repeated to respondent what Dr. Leitch had said about the steps he had taken. After receiving Dr. Hannan's letter of July 11th, he had telephoned to the Registrar and had spoken to someone whom he had supposed to be the Registrar. He had asked whether the clinic, having a consulting physician, might advertise. The person on the telephone had replied that he would not state a case; the question might arise that, although the clinic was not advertising a particular doctor, it was advertising *a* doctor, and if a complaint were lodged the Council might have to consider the point. Witness had replied that he wished only to work under the direction of the British Medical Association and would not advertise. From that date he had cancelled all advertising contracts. He had never discussed the commercial side of the clinic with Dr. Hannan, who had merely arrived on Wednesday afternoons, received his fee in advance, attended the patients, and left. After he had examined Mr. Hall, he had taken no notice whatever of the further transactions.

The Registrar, recalled, said that he had no recollection of a conversation with Mr. Morland, but he had no criticism to make of the answer which Mr. Morland recollected.

The President, announcing the decision of the Council, said:—"Dr. Hannan: I have to inform you that the facts alleged against you in the charge have been proved to the satisfaction of the Council. The facts so proved bring you within the terms of the Warning Notice of the Council in regard to the practice of indirect advertising or of canvassing by any registered medical practitioner. The Notice explicitly states that you must be presumed to be aware that any registered medical practitioner found to have been guilty of advertising, whether directly or indirectly, or of canvassing, for the purposes of obtaining patients, is liable to have his name erased from the Medical Register. The wording of the Notice should have been sufficient to show you, apart from these proceedings, that the Council take a grave view of the forms of professional misconduct which have been proved in your case. The Council are, however, willing to afford you a further opportunity of realising your position in relation to the charge, and they have for this purpose postponed their judgment until the session in May, 1939. Before that time you will be required to produce testimony from persons of standing, including professional colleagues, as to your habits and conduct in the interval. In considering that testimony the Council will pay particular regard to the question whether it satisfies them that you have not resumed your employment with the organisation mentioned in the charge, or accepted any similar employment."

UNSUBSTANTIATED ALLEGATIONS

The Case of James Thomas Hallett, registered as of 10, Downs-road, Folkestone, M.R.C.S. Eng., 1935; L.R.C.P. Lond., 1935, who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner and employed as an assistant by Dr. Herbert Max Livingston between Dec. 9th, 1936, and Jan. 7th, 1937: (1) you caused to be printed, and circulated, without the knowledge or consent of Dr. Livingston, forms of medical certificates and notepaper, the headings of which implied that you were in partnership with Dr. Livingston when in fact you were not, and were further calculated to imply, by the omission of the address and telephone number of the premises—namely, 22, Uxbridge-road, Ealing, W.5, Ealing 0786—where his main practice was carried on, that his practice had been transferred from the said 22, Uxbridge-road, Ealing, W.5, to the premises where branches of his practice were carried on under your charge as his assistant; (2) you withheld, or attempted to withhold, services which it was your duty to render to patients of the practice of Dr. Livingston—namely, Mrs. Magill, on behalf of her daughter Mrs. McGregor, and Mrs. Evans—in attendance at the premises where branches of his practice were carried on under your charge as his assistant; (3) you attempted, without the knowledge or consent of Dr. Livingston, to induce a patient of his practice—namely, Mrs. Magill, on behalf of her daughter Mrs. McGregor—to seek treatment from a registered medical practitioner not associated with the practice of Dr. Livingston; and (4) you attended patients of the practice of Dr. Livingston—namely, Mr. Griffiths, Mr. Blackebie, Miss Bennet, Mr. Watson, Mr. J. Pearce, Miss Osgathorpe, and Miss Cambrook—contrary to his express instructions, at a time when, as you well knew, you were suffering from an infectious disorder—namely, chicken-pox—and when you were, moreover, in the acute stage of that disorder. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

The complainant was Dr. Herbert Max Livingston, M.B., B.S., 1907, M.D., M.S. 1910, U. Durh.; F.R.C.S. Eng., 1921, who conducted his own case. Respondent was represented by Mr. Pereira, counsel, instructed by Messrs. Le Brasseur and Oakley on behalf of the London and Counties Medical Protection Society.

The complainant read out a long statutory declaration which constituted his evidence. He admitted that, on precisely the same facts as those which he proposed to prove before the Council, the county court judge at Brentford had awarded £72 damages and costs to Dr. Hallett in an action for wrongful dismissal. He pointed out that Dr. Hallett had admitted in those proceedings the unauthorised use of notepaper and his suspicion that he had had chicken-pox on the material date. The legal assessor directed the complainant to read the judgment of the county court judge, who said that he was quite

satisfied that Dr. Hallett had had no intention of holding himself out as a partner, although he admitted it was an unfortunate mistake to have had the note-paper and certificates printed as he had. He had acted with complete innocence. The learned judge said that generally on questions of fact the plaintiff was a much more dependable witness than the defendant and that he had at all times preferred his evidence to the defendant's when in conflict. Dr. Livingston said that Dr. Hallett's impudent and unrepentant attitude in bringing the proceedings in the county court was the chief motive for his complaint. Before those proceedings he had contented himself with an informal letter to the President, but since then he had considered it his duty to bring Dr. Hallett to a sense of his professional responsibilities.

After the complainant had called evidence, and Dr. Hallett had given evidence, Mr. Pereira declared that the case was ripe with malice, and was nothing more nor less than persecution. The truth was that Dr. Livingston could not get over his annoyance at losing the county court case. It was a grave hardship for a young man like Dr. Hallett, at this stage of his career, to have to stand up again, before a professional tribunal, on these four matters, exactly the same as the matters in issue in the county court, and to undergo a trial which was bound to affect him, no matter what the issue.

After a very brief consideration in camera, the President announced that the Council had not found the charges proved.

Committee Business

DENTAL CURRICULUM

The Council adopted a series of amending recommendations by the Dental Education and Examination Committee dealing with the curriculum and examinations for candidates requiring licences in dentistry. These provide that, subject to exceptions in individual cases, every dental student at the beginning of his studentship shall be registered in the same manner as a medical student and under the same conditions with respect to age, preliminary examination, and additional examinations. Applicants for registration may commence professional study. An applicant who has served two or more years as an apprentice in dental mechanics may, if the licensing bodies think fit, be allowed to antedate his registration for a period not exceeding six months. Every student on registration must furnish evidence that he is 18 years old or will be so within three months. The preliminary and additional examinations are the same as those required for medical students. The paragraph in the existing recommendations which laid down that no portion of practical instruction taken before registration should be reckoned as a portion of the four years of professional study required is now rescinded.

THE BRITISH PHARMACOPŒIA

The Pharmacopœia Committee reported that a total of 721 copies of the British Pharmacopœia, 1932, and 637 copies of the Addendum, 1926, had been sold during the previous six months. The British Pharmacopœia Commission reported, through the Committee, that the revision of the monographs of both volumes which it was proposed to retain was nearing completion. A total of 522 monographs had now been completed and the recommendations would be published later in the year. The Commission hoped in this way to obtain the criticisms and comments of as wide a circle of experts and interests as possible. Many suggestions, both official and unofficial, had been received for the composition of the next Pharmacopœia. Two papers on work done at the request of the Commission had been published: Glycerin of Starch: a study of the effects of storage, by I. Roberts; and The Assay of Liquid Extract of Ergot, by C. H. Hampshire and G. R. Page.

MEDICINE AND THE LAW

Hospital Mortuary as Alleged Nuisance

THE Surbiton Hospital, erected in 1936, has had to defend itself against an action by an owner of neighbouring property who complained of the objectionable sights, sounds, and smells of the hospital's mortuary and post-mortem block. The building, he said, was only 16½ feet from the boundary wall of his property. His house was let to a tenant, Miss Tomlin, who conducted it as a guest house. Miss Tomlin could accommodate six guests; she now had only four and these were paying much less than formerly because people would not pay to live next a mortuary. Miss Tomlin consented to remain as tenant only if her rent was reduced. Extracts from her diary were read and discussed. She and her sister had seen bodies conveyed to and from the mortuary room. Noises from that room, apparently caused by the use of hammer and chisel, reverberated through her house. On one occasion a body was removed without a covering sheet; the head rolled from side to side as the bier was being carried along. Undertakers' men passed the windows of her dining-room where her guests were dining. There were unpleasant smells, "the smell of death." Her sister, who had been a trained nurse, recognised the odour and corroborated the evidence. The hospital gardener said he thought the smell was caused by the coke burning in his greenhouse chimney, but this explanation had not been suggested to the plaintiff. A pathologist who conducts examinations for Surrey coroners was emphatic that the hospital's mortuary was modern and well laid out. The Surbiton sanitary inspector thought the block excellent in design and construction; he did not think the plaintiff's tenants could see the mortuary entrance unless they deliberately leant out of the window. Counsel for the hospital contended that the complaints were based on sentiment and psychological obsession. The case rested on "the hair-trigger noses" of the ladies who occupied the plaintiff's house. The matron denied the suggestions of nuisance and said it would be a grave handicap to the hospital if post-mortem examinations were barred from the mortuary. The hospital secretary told how a protective screen, 8 feet high, had been erected between the two properties. There were three acres of hospital grounds, but the mortuary could not be built in a different place without interfering with the plans for future extension of the hospital.

Mr. Justice Gavin Simonds, after hearing the evidence, gave the parties a strong hint to come to terms. He had indicated his surprise that no member of the hospital committee had gone to the plaintiff's house to see if there was any justification for the complaints. Observations from the bench seemed to indicate that the complaint of distressing sights alone would scarcely justify the grant of the remedy demanded by the plaintiff. There was also apparently a possible defence in the contention that depreciation of the value of a house by an alleged nuisance affecting the occupiers does not give the reversioner a right to

an injunction—at any rate when there is no threat of constant recurrence. The legal position, however, was not elucidated. The parties took the judge's hint and came to terms. The hospital agreed not to hold post-mortem examinations in the mortuary and to alter arrangements so as to prevent any further nuisance to the plaintiff. Few people would really welcome the building of a post-mortem room within a few feet of the windows of their home. It would scarcely enhance the commercial value of their property. On the other hand, the community must have hospitals in populous centres, and it is reasonable to equip a hospital with a mortuary and post-mortem room. These things are not nuisances in themselves, nor is it possible to hide them away in remote solitudes.

The Nurse as a Defendant

The growing recognition of the status of the nursing profession carries with it an increase of legal responsibility. The State-registered nurse undergoes a long and careful training and she emerges with a high reputation for skill and judgment. It follows that she becomes the target for those harassing claims, often speculative and ill-founded, which patients seem to show an increasing tendency to bring in the law courts against those who have done their best to deserve a more grateful acknowledgment of services rendered. In the missing-swab or in the hot-water bottle cases—to mention two constantly recurring types of litigation—the relative responsibilities of surgeon and nurse are not yet clearly defined. If both are cited as defendants, their interests may conflict. Lately in Mahon *v.* Osborne at Manchester assizes the defendant nurse seemed to have assumed that her cause would be looked after by the legal advisers of the defendant surgeon. As the legal advisers made plain, it happened that the interests of the two defendants would best be served by separating the defences. Such instances show that the time has now arrived for the State-registered nurse to obtain individual protection from the possibly serious consequences of allegations of professional negligence. The College of Nursing, it is understood, offers its members free legal advice as one of the privileges of membership; but the nurse who becomes involved in legal action has to bear her own expenses. At the end of 1936 a scheme was accordingly devised by the college whereby, for an annual premium of 7*s.* 6*d.*, a nurse could be insured against possible claims up to £1000. If there has so far been little enthusiasm among nurses to take advantage of the special policy devised for this purpose by a well-known insurance company, this may be because the individual nurse, trained to identify herself with the interests and concern of her hospital, does not visualise herself as the possible victim of litigation. The risk is present, nevertheless, and it is probably an increasing risk. It makes all the difference in the world to the surgeon if he knows himself to be protected against the anxieties of unexpected claims and the burdens of unfathomable verdicts, and the nurse needs the like relief from these worries. She will obtain such relief only if she gives serious consideration to some system of professional insurance.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index

FROM A LONDON PRACTITIONER

I

THERE is an odd thing about general practice. At openings of medical schools, public meetings, and places where they speak it is held in esteem. The general practitioner is the Backbone of the Profession, and one can hardly suppose the function of a structure so important could be ignoble, paltry, or of doubtful value. Elsewhere and upon other occasions general practice, if not the general practitioner, is belittled and decried by speakers and writers within and without the profession for many and, sometimes, conflicting reasons.

"Oh," said a candidate for a resident post when asked concerning her ultimate professional ambitions (I think it was a she), "I suppose I shall drift into general practice." It was not a tactful answer, for the committee interviewing her consisted mainly of general practitioners, and the appointment went elsewhere, but she voiced a common opinion. General practice is what you do if you have not the distinction or ability to do anything else.

Others condemn it for a contrary reason. Medicine, they say, has become so vast that general practice is an impossible conception. Absurd to attempt anything so diffuse. No one can be big enough for it. The general practitioner can be nothing other than the complete smatterer. Young men in the pride and glory of their second or third resident appointment have sometimes the curious belief that the practising doctor sees little or no real organic disease or, if he does, must instantly abandon responsibility and hand his patient on to someone else. Manifestly, the young man couldn't stand a life like that, he must specialise. Other young men cannot believe in the possibility of honest private practice, especially if it be general, and one such assured me that he was hoping to enter a State medical service (in Uganda, I fancy) for the express purpose of saving his professional soul. I told him that it was not really so bad as that, but he looked politely incredulous. He may now, for all I know, be an honest private practitioner, or he may be under discipline in Uganda, saying to himself as he reads Dr. Cronin under a mosquito-net, "There, but for the grace of God, goes X.Y.Z." Other critics are shocked at the lack of Coördination, Scientific Method, System, and The Preventive Spirit. One such (himself a surgeon) expressed the hope that the medical students he was addressing "would not be content to become merely tradesmen in health, selling their skill in the treatment of declared disease."

* * *

Of lay depreciators, many have their judgment warped by the magic of the word "specialist." One of these, they suppose, exists not only for each region, organ, and tissue of the body but for each several disorder of these various parts. It is obvious that the specialist is the man who knows and to whom you should go if only you can find the right one. Per contra, the general doctor (unless indeed he be a General Specialist) can scarcely be of much account. As for the G.P. (for this deplorable abbreviation has to come, sooner or later) he does not always decry himself. Often enough he is manifestly

contented with his lot, knows he has a job worth doing and, like a wise man, says nothing and carries on, but sometimes he turns querulous and laments both present and future. All things are taken from him; he is becoming a mere rubber stamp for certificates, a pedlar of soothing syrups, the State has got him (or had better get him, according to political complexion), and in any case Ichabod, the glory is departed, individual medicine is at an end.

* * *

It is frankly astonishing to contrast these pictures with personal experience. True, I can speak only of one general practice. The lot has fallen unto me in a fair enough ground and I can easily imagine that economic circumstances may, to put it bluntly, spoil the whole show. No doubt they often do, but that is not to the point. The critics I have quoted decry or belittle not practice ruined by economic circumstances but general practice itself.

Manifestly such practice is not for everyone. It is not for the man at heart a scientist, curious for precise knowledge and controlled experiment, nor for one for whom the morbid process is more than the patient, or for whom disorders without material pathology seem outside the field of medicine; and, like all medical practice, it is not, or should not be, for the fortune-hunter; but for the less precious sort it provides a full and varied day's work, scope for all the skill in observation and diagnosis a well-trained man can possess, as much responsibility as anyone not a glutton for it can demand, an unsolved riddle to take to bed nightly (in place of the crossword puzzle), and if you add together the excellent professional exercise, the proportion of good done (if restoration of health or relief of pain or anxiety be a good), the thanks and the cash, there remains after all proper deductions for trivialities and wasted time, failures, ingratitude, and bad debts, a better credit balance than most receive for a day's honest work in this very imperfect world. Nor is this the end of the catalogue, for a man with surgical skill need only choose his practice with discretion to find scope for that too. Let us agree that (for example) a man capable of thinking his way through the brain in three dimensions would be wasted as a general practitioner with neurology calling out for him; and that certain flairs and special dexterities rightly mark their possessors for special provinces, yet these exceptions do not invalidate the truth that no one can be too good for general practice.

* * *

But can anyone be good enough?

Doubtless the perfect practitioner, like the perfect painter, the perfect mother, the perfect Prime Minister, or the perfect cook, is a rare bird. The Art is long and difficult. But it is absurd to pretend that there is something hypocritical or fantastic in aiming at or pretending to a degree of all-round competence which justifies the term "general practitioner." It is perfectly possible to be capable of making an informed and purposeful examination of a patient with any sort of complaint, general or local. It is perfectly possible to possess the requisite knowledge and skill for making a diagnosis in a large majority of cases, and to know what special investigations are needed in the remainder. It is equally possible to have the knowledge and skill to carry through the treatment in the great majority and to know what should be done, or at least to whom to turn, in the minority.

The "too wide" criticism forgets that common things are by far the commonest, that rarities can generally be spotted for rare without very much trouble, and that on the whole the same methods of investigation prevail in every province of medicine. A vast knowledge of detail is not required; unremitting care, trained skill in clinical examination, imagination, and a sufficient knowledge of possibilities are what are needed. They are in the possession of many, and within the competence of many more.

PUBLIC HEALTH

Milk in Schools

THE Milk Nutrition Committee was set up, under the chairmanship of Lord Astor, shortly after the milk-in-schools scheme had been launched, and they decided to include in their programme of experimental work a study of the effects upon growth and health of the amounts of milk usually consumed by children under that scheme. An equally important issue, which could be studied in the same trials, was the relative value of raw and pasteurised milk. For the purpose of these observations five areas were selected —Luton, Wolverhampton, Burton-on-Trent, Huddersfield, and Renfrewshire—and rather more than 8000 children were enrolled. These children were allocated at random to four groups of equal size, each group having a different dietary supplement (given daily)—viz., (1) ⅓ pint pasteurised milk, (2) ⅔ pint pasteurised milk, (3) ⅔ pint raw milk, (4) biscuits. These supplements were given over a whole calendar year, the children meanwhile being examined and measured by specially appointed medical officers at three-monthly intervals. Some of the results of this large-scale experiment are now given in an interim report of the committee,[1] which relates to the three-quarters of the children who were present at all four quarterly examinations. The analysis is also limited at present to the changes in physique observed between the beginning and end of the year of trial. Over this period of time the different groups have shown growth rates which certainly differ, but not very largely. The average increase both in height and weight was least for the children whose supplement was biscuits, rather larger for those whose supplement was ⅓ pint of milk, and greatest for those who had ⅔ pint, and that order appears to be general for each area and age-group. But comparing the extreme groups, those with biscuits and those with ⅔ pint of milk, the absolute differences only amount to about one-tenth of an inch in height during the year and to less than a pound in weight. Put relatively, the boys with biscuits increased their initial height by 4·16 per cent. and their initial weight by 10·87 per cent. compared with corresponding figures of 4·4 and 12 per cent. for boys with ⅔ pint of milk. For girls the corresponding figures were 4·66 and 12·75 per cent. in the biscuit group, 4·8 and 14 per cent. in the ⅔ pint group. The differences, though consistent, are clearly not very impressive. Perhaps even the larger amount of milk given is not sufficient to affect the growth rate materially, but it may well be that the experiment is not a fully effective one owing to the necessary lack of supervision of the home diets. The child given biscuits at school may well

[1] Milk and Nutrition. New experiments reported to the Milk Nutrition Committee. Part II. Interim Report. Pp. 34. 1s. 9d. Obtainable from the National Institute for Research in Dairying, Shinfield, Reading.

have milk added to his home diet by a mother continually instructed in its value, while he who has milk at school gets no more at home; in other words the control is not an effective control.

That possible complicating factor should, however, not be present to the same extent, if at all, in the comparison of the groups on equal quantities of raw and pasteurised milk, and the committee's conclusion on this point is important. It is that whether comparisons be made of the increments of growth in the total of children, or in subdivisions by age, area, and clinical assessment, there is no consistent difference between children on ⅔ pint of raw milk and children on ⅔ pint of pasteurised. The committee qualify this statement by pointing out that the increments over the group on biscuits are so small that it is doubtful whether slight differences between the nutritive values of raw and pasteurised milk in supplements of the amount given could be revealed in measurements of height and weight, but as pointed out above the latter comparison may easily be a more sensitive one than the former. Actually, taking the total group of children, boys with ⅔ pint of pasteurised milk increased their height over the year by 2·25 inches and their weight by 7·11 pounds; those on ⅔ pint of raw milk increased by 2·21 inches and 7·16 pounds. For the corresponding group of girls the figures were 2·43 inches and 7·99 pounds in the pasteurised group, against 2·42 inches and 8·30 pounds in the raw group. The differences are clearly negligible. In an addendum are some figures which show that the group on milk also surpassed the group on biscuits in their chest measurements and their strength of pull. The committee have obtained full details of school absences and other measures of health and their final report should contain interesting information on the relation of the supplements to general health as well as to growth.

An Advisory Medical Committee in Croydon

The Croydon typhoid tribunal in its report suggested that in all large areas there should be a committee representing local practitioners which would be available for pooling and distributing information if an outbreak arose. Croydon doctors were asked to submit their observations on this proposal and a joint meeting of the Croydon branch of the B.M.A. and the local medical and panel committee resolved that an ad-hoc consultative committee should be set up by these bodies and that from this a small executive should be appointed which the council might consult when necessary. It was further suggested that the borough council should be asked to coöpt four medical men on to its public health committee. The special typhoid committee of the council considers that coöperation between local doctors and the public health service can be secured without coöpting non-members on to an important spending committee of the council and suggests instead an advisory committee comprising four members appointed by the local practitioners' organisations and six by the public health committee. This body would meet at regular intervals for discussion and would submit its recommendations to the public health committee. It is the opinion of the typhoid committee that the method would have the advantage of preserving the statutory position of the medical officer of health as the council's adviser on public health matters, and the council has now endorsed this view.

CORRESPONDENCE

CHEMOTHERAPY OF PNEUMOCOCCAL AND OTHER INFECTIONS

To the Editor of THE LANCET

SIR,—The results in the animal experiments (reported in your issue of May 28th by Dr. Whitby) on the treatment of pneumococcal infections with 2-(*p*-aminobenzenesulphonamido)pyridine (M. & B. 693) have been tested clinically during the past three months in cases of lobar pneumonia in adults and broncho-pneumonia in infants at Dudley-road Hospital, Birmingham.

The final assessment of the clinical results requires careful analysis before publication, but in a series of more than a hundred cases of pneumonia and broncho-pneumonia the mortality has been very definitely lower than in a similar number of control cases during that time, and toxic symptoms, even with large doses of the drug, have been conspicuously absent.—We are, Sir, yours faithfully,

G. MARY EVANS,
WILFRID F. GAISFORD.

Dudley-road Hospital, Birmingham, May 30th.

To the Editor of THE LANCET

SIR,—It was with great interest that we read Dr. Whitby's article and your annotation on the effect of 2-(*p*-aminobenzenesulphonamido) pyridine (M. & B. 693) on coccal infections in mice; for during the past six weeks we have had the opportunity of testing the effect of this new compound on gonococcal infection in man. A supply of tablets, each containing half a gramme, was kindly made available by Messrs. May and Baker Ltd., together with laboratory data concerning tolerance by various animals.

The drug has been administered to 36 adult male out-patients and 7 children who were in-patients. In adults the customary dose was 3 grammes daily, and some cases have shown toxic symptoms as early as the third day on this dosage; but other patients have received as much as 50 g. during three weeks with no signs of intolerance. The usual instructions for the avoidance of sulphur-containing foods and aperients were given. The trial of a larger daily dose in a few cases appeared to increase the incidence of toxic effects without increasing the therapeutic value, and trial of a dosage less than 3 g. daily is in progress.

Toxic effects were observed in 10 of the 36 adult cases and included two cutaneous eruptions (one of photosensitivity and one of generalised macular drug eruption); gastro-intestinal disturbance (anorexia, nausea, vomiting, and diarrhœa) was encountered in 4 cases; and 4 patients also complained of headache, depression, and dizziness. Evidently this new compound will not prove to be without effect upon leucopoiesis, for we observed moderate granulocytopenia in 4 cases, and doubtful cyanosis in 1. Sulphæmoglobinæmia or methæmoglobinæmia was not detected in 22 complete blood examinations, and these also failed to reveal any definite depression of the erythroblastic system. It is of interest that the patients exhibiting skin eruptions had both previously shown a similar reaction to sulphanilamide.

As regards the effect of this compound in untreated cases of acute gonococcal urethritis, 11 out of 16 under treatment showed no visible discharge and no symptoms after two days. In the other 5 cases this

state was not attained until the fifth day. Subsequent observation for a period of two to three weeks from the cessation of this therapy has revealed no sign of relapse and no complications of the gonococcal infection. In all cases except 1, which received no adjuvant treatment, daily irrigation with potassium permanganate (1 in 8000) was also employed during the period of chemotherapy.

Of an additional group of 10 cases which had failed to respond to treatment with sulphanilamide, or which had relapsed after it, a rapid response was effected in 7. Since, however, the new compound has been given at a stage of the disease (3–16 weeks) when the gradual production of antibodies is likely to be well advanced, any direct comparison of these two drugs will be weighted against the one that was first employed. The apparently superior efficacy of 2-(*p*-aminobenzenesulphonamido) pyridine must therefore await further judgment in this respect. In 2 cases the gonococcal infection was not influenced and the remaining patient defaulted.

The effect of this new preparation in gonococcal vulvo-vaginitis is also of interest. A group of 7 children aged from twenty-two months to seven years, under the care of Dr. Morna Rawlins and Dr. D. Kathleen Brown of this clinic, were treated for four days with a dosage varying from 0·75 to 1·5 g. daily. The clinical signs of the disease disappeared in three days in all cases and subsequent microscopical examinations have failed to reveal gonococci, which were numerous in each case at the commencement of this treatment. One of these infants had previously failed to respond to two weeks' therapy with sulphanilamide. Vomiting occurred in 3 children who appeared otherwise in good health. Complete blood examinations were carried out on 5 children, 1 of whom showed a mild granulocytopenia. None of these children have been observed for more than a fortnight from the cessation of treatment but no relapse has been noted up to date.

It is clear that this new compound, given by mouth, has a markedly beneficial effect in a considerable proportion of cases of gonorrhœa. In view of the well-known tendency of this disease to relapse it would obviously be premature, however, to attempt to assess the value of the remedy on the basis of a few cases treated for a short time. Although Dr. Whitby's paper indicated that the new preparation is relatively non-toxic in small doses in animals, our experience in man suggests that a dosage comparable with that usually advised for sulphanilamide will give rise to comparable toxic effects.

We are, Sir, yours faithfully,

V. E. LLOYD,
D. ERSKINE,
A. G. JOHNSON.

Venereal Diseases Department, Guy's Hospital, S.E., May 30th.

ASSISTANCE TO AUSTRIAN MEDICAL STUDENTS

To the Editor of THE LANCET

SIR,—As the matter is one which concerns the profession as a whole, I enclose hereunder a letter which has been circulated to the deans of the medical schools in the British Isles.

"We are all very naturally exercised about the treatment and unhappy prospects of our colleagues in Austria. I think there is general agreement in the profession that there is no longer room for any great increase in the number of foreign doctors allowed to practise in this country and that the best we can do, where possible, is to offer asylum to individuals.

"The question of the medical student seems to some of us to be in a rather different category and I am wondering whether we might not make some concerted effort to provide opportunities for a limited number of Austrian medical students in the British Isles for whom racial origins or political views have made life in their own country no longer possible.

"The London Hospital, I understand from Dr. A. E. Clark-Kennedy, the dean, have generously undertaken to take one student free of charge for the whole of his medical curriculum on the understanding that his board and lodging can be privately provided.

"I would like to offer the suggestion that each medical school should undertake the free education of one student in this way and on these conditions. You will appreciate that this is a very different thing from allowing dilution with Austrian Jewish practitioners who obtain a quick qualification in some university in this country. By the time he is qualified, a student entered from the beginning of his course would be eligible for naturalization. By that time also we may anticipate that the high figures of entry into the profession will in all probability have fallen off.

"I shall be most grateful if you could bring this suggestion to the notice of your school council."

If a medical education from the first year could be assured for a group of students in the manner indicated, lives at present deprived of hope and prospects would again have meaning. Homes would also be needed, but it is not to be doubted that medical men and others in a position to do so would be gladly forthcoming as adopters.

I hope and believe that the example of the London Hospital will be followed elsewhere.

I am, Sir, yours faithfully,

JOHN A. RYLE.

Cambridge, May 30th.

"ALCOHOLIC" BERI-BERI

To the Editor of THE LANCET

SIR,—I was greatly interested in the cases of congestive heart failure following bouts of heavy drinking mentioned by Dr. Soltau in his letter published in your issue of May 7th. I think there can be little doubt that such cases are essentially similar to the one recorded by me (THE LANCET, April 9th) and to those of severe type described by Weiss and Wilkins, all of whom were addicted to alcoholic excess.

Dr. Soltau suggests that the symptoms may be due in part to the direct poisoning effect of alcohol on the cardiovascular system rather than to deficiency of vitamin B_1. It is of course difficult to refute this, nor I think is there any need to do so provided that it is recognised that avitaminosis plays the major part. Some of the evidence in support of this contention may be recapitulated briefly as follows.

In the first place there is the undeniably close clinical similarity to "wet" beri-beri in the orient. The lowering of the diastolic blood pressure and audible arterial bruit present in Dr. Soltau's cases are a particularly striking feature in the ordinary beri-beri heart and form the basis of the adrenaline test which Wenckebach and Aalsmeer regard as pathognomonic. Reversible cardiac enlargement and a shortened P–R interval may afford additional points of similarity. Secondly, there is the rapid disappearance of cardiac signs both in alcoholic and endemic beri-beri following injections of vitamin B_1. Thirdly, it has been shown by Joliffe and Colbert that an adequate intake of vitamin B protects against cardiac and neural damage even although large amounts of alcohol are consumed daily. Repeated confirmation of Shattuck's original premise makes the evidence so strong at present that it is difficult to believe that direct poisoning by alcohol can have more than a minor influence in the genesis of this syndrome.

I am, Sir, yours faithfully,

N. L. PRICE.

Clifton, Bristol, May 22nd.

DIASTOLISATION

To the Editor of THE LANCET

SIR,—In his letter in your issue of May 7th Dr. Douglas Guthrie refers to my article of April 23rd and asks whether the bulb is compressed once, or a number of times by separate efforts, or whether a rhythmic continuous movement over a certain period of time is imparted to the bulb. The reply is that the bulb is compressed by separate efforts about ten times per minute, the tube being at the same time moved slowly to and fro. This is indeed a very important point, and I am grateful to Dr. Guthrie for having made this inquiry. Prolonged rhythmic movements which produce successive rapid alterations of pressure within the tube are not what is expected in diastolisation; it is not to be considered as merely an intranasal massage, but rather as a stimulation of the mucous membrane and its nerve-endings.

Since writing my article I have heard from a number of medical men to the effect that they have been using diastolisation for hypertrophic rhinitis and allied conditions in children as well as in adults with encouraging results.

I am, Sir, yours faithfully,

Harley-street, W., May 28th. ARTHUR MILLER.

HEARING-AIDS FOR DEAFNESS

To the Editor of THE LANCET

SIR,—Your correspondent, Mr. L. T. Webb, asks in his letter of May 14th if the time has not arrived for an effort to be made to form a corporate body among the hearing-aid industry corresponding to the opticians. Actually a number of hearing-aid manufacturers have already joined together to form the Aural Society of Great Britain, the aims of which are (among others) to regularise methods of trading, to establish standards of performance of various hearing-aids, and generally to coöperate with the medical profession in the development and supply of hearing instruments. The Society is in its very early stages, and it is likely to be some time before all that Mr. Webb asks can be achieved, assuming that it is considered that this is the best method of procedure. Anyone desiring information about the Aural Society may obtain it from me at Amplivox House, 2, Bentinck-street, London, W.1.

I am, Sir, yours faithfully,

May 18th. A. EDWIN STEVENS.

To the Editor of THE LANCET

SIR,—With reference to the remarks contained in Mr. Webb's letter to your issue of May 14th, may I as a member of the council and ethical committee of the Institute of Surgical Technicians express the view that it would considerably clarify the present position in regard to the supply of hearing-aids, as well as surgical appliances generally, if the work of both the Institute of Surgical Technicians and the National Institute for the Deaf was more widely known.

The Institute of Surgical Technicians was formed some years ago with the object of establishing a roll of names of accredited technicians with whom surgeons might safely coöperate. The Institute to-day has some 250 members, among whom are numbered international authorities in every branch of surgical technicology. The standard required may be judged by the fact that the qualification for fellowship must include a twenty-year association with an accredited surgical instrument concern, during which for a set period the applicant must have held a position of responsibility, and be vouched for in writing by a practising member of the medical profession. The second category for membership, that of licentiate, necessitates the same qualifications as above, except that the period of association with an accredited surgical concern may be ten years. The nomination demands an undertaking to sign and abide by the conditions of a strict ethical code as laid down by the Institute, as well as a similar code established by the medical committee of the National Institute for the Deaf. In consideration of this procedure I think it may justly be suggested that any member of the medical profession may recommend his patients with complete confidence to members of the Institute.

To revert to hearing-aids, it might be justly pointed out that although I am personally in agreement with a 5 per cent. charge being made to cover batteries, postage, and the loan of the instrument, there are many concerns, such as my own, who do not impose such a charge, the only reason for this being that it would be difficult to introduce such a measure after generations of working to a set procedure. The question of compensation for wear and tear whilst an instrument is on loan is a particularly heavy item for those members of the industry who do not necessarily manufacture but have to purchase various types and makes of instruments to hold in stock. In many instances the instruments are damaged in transit, leather cases are soiled, and as the outcome of twenty years' careful study and experience on this point I am satisfied that it would become unprofitable to the average surgical instrument house to market hearing-aids ethically unless some compensation was allowed as recompense for such usages.

Nobody is more fully aware of the unsatisfactory position that exists in certain quarters to-day in the marketing of so-called deaf-aids than our own group, and it is for this particular reason that a number of reputable houses have come together with the common object of supporting the approved list published by the National Institute for the Deaf, in the hope that in doing so they will create a closer understanding and fuller coöperation with members of the medical profession.

I am, Sir, yours faithfully,

LESLIE V. K.-REIN.

Charing Cross-road, W.C., May 27th.

HISTOLOGY OF DIABETES INDUCED IN DOGS BY INJECTIONS OF ANTERIOR-PITUITARY EXTRACTS

To the Editor of THE LANCET

SIR,—In your issue of May 14th K. C. Richardson and F. G. Young reported very interesting results from the investigation of experimental permanent diabetes, induced in dogs by injections of crude anterior-pituitary extract. The importance of their experiments is beyond doubt. The permanent diabetes of young dogs corresponds to the human diabetes of acromegaly or gigantism, accompanied by oversecretion of the diabetogenic factor of the anterior pituitary. This is in close agreement with the results we have obtained in acromegaly associated with diabetes. We, indeed, found that the blood plasma freshly taken from an acromegalic patient and injected into rabbits caused high hyperglycæmia.[1]

One point in Richardson and Young's investigation remains, however, to be elucidated. The pancreases of dogs rendered diabetic contained no detectable islet tissue, whereas one dog which failed to become

[1] Elmer, A. W., Giędosz, B., and Scheps, M., *C.R. Soc. Biol., Paris*, 1937, **125**, 1086; *Acta med. scand.* 1937, **93**, 487.

permanently diabetic had islets of Langerhans normal in every respect.

In this connexion it is of interest to notice our own observation that in a dog (5·4 kg.) treated with daily intraperitoneal injections of acid anterior pituitary (prepared by us by L. Loeb's method) corresponding to 0·5–1·0 g. of dried substance per kg. body-weight, over a period of one month (100 g. of dried anterior pituitary), there appeared only in the first days of treatment a slight and temporary glycosuria and hyperglycæmia. The dog died nine days after the last injection of the extract with general extreme weakness and loss in weight. Though permanent diabetes had not been induced the islet tissue of the pancreas was found to be markedly atrophic. The thyroid showed signs of hyperfunction, but no striking histological change was apparent in the other endocrine glands (unpublished data). On the other hand, we found in young rats, guinea-pigs, and rabbits, injected with the same anterior-pituitary extract, an immediate rise in the blood-sugar, even up to 400 mg. per 100 c.cm. when a large dose (0·5–1·0 g. of dried anterior pituitary per kg. body-weight) was given intraperitoneally or intravenously. In spite of this striking diabetogenic activity of the anterior-pituitary extract, there was little change in the histological aspect of the pancreases of animals treated for 4–6 days, as shown in our papers.[1] The question arises whether the changes in the islet tissue are due to the activity of the diabetogenic or of the thyrotropic hormones, both contained in crude anterior-pituitary extracts. Since Houssay, Biasotti, and Rietti [2] have established that the diabetogenic effect of the anterior pituitary is independent of the condition of the islets, it appears to us that the changes in islet tissue found by Richardson and Young and by ourselves are most probably linked with the activity of the thyrotropic hormone.—We are, Sir, yours faithfully,

A. W. ELMER,
B. GIEDOSZ,
M. SCHEPS.

Institute of General and Experimental Pathology of the University of Lwów, Poland, May 23rd.

PARLIAMENTARY INTELLIGENCE

DETENTION OF MENTAL DEFECTIVES

IN the House of Commons on May 30th Mr. ELLIOT, Minister of Health, in moving the second reading of the Mental Deficiency Bill, said that the necessity for this Bill arose out of a decision of the Court of Appeal. The case turned upon a very narrow point—namely, the interpretation of Section 11 of the Mental Deficiency Act 1913. The Act said that an order should expire at the end of one year unless continued under certain procedure, and the Board of Control considered they had a right to regulate their procedure. For many years the Board, acting on legal advice, had proceeded on the view that, provided they had concluded the consideration of the special reports and certificates and had satisfied themselves in due time that the continuation of the order was required, the final sealing and issuing of the order might be done administratively with such reasonable delay as was unavoidable. That view was upheld by a Divisional Court of the High Court, but the decision was reversed by the Court of Appeal.

THAT EXTRA MONTH

The Government had come to the conclusion that one month's latitude should be allowed as set out in this Bill. This latitude allowed reasonable time for consideration of the report and for making up the Board's mind. The Bill also validated orders which had been invalidated by the previous assumption.

Mr. RHYS DAVIES said that the Labour Opposition did not intend to oppose the Bill, but they would like to know whether in fact the Bill did not increase the power of the Board to detain persons in institutions and enable them to do things which they could not do at present.—Mr. MOREING said that there was a tendency now to take the view that the erring of juvenile delinquents was due to mental deficiency and to treat such persons under the Mental Deficiency Act instead of handing them over to the jurisdiction of magistrates. That was having an increasing effect on the number of people being certified for treatment under the Act.—Mr. LOGAN said that he had seen some of these cases lately and in most of them the Board of Control was doing a wonderful work, but he was doubtful whether in general the Board exercised the supervision which was essential for the welfare of the individuals placed under their care. The individual who was taken into a mental institution should stage by stage have his condition certified and at the end of the twelve months it should be possible to know exactly what his condition was. Twelve months was long enough to detain anybody without certification.

Sir FRANCIS FREMANTLE pointed out that in regard to patients being sent to an institution always for a year there was a definite provision that the Board might direct the order to expire on the quarter day next after the admission, so that they had the power to limit detention to three months. A patient could be detained after twelve months only when two practitioners, including one chosen by the defective, his parent or guardian, or any relative or friend, had made an examination, and considered that it was in the interests of the patient that the order should be made. Therefore it was not a case of wrongful detention under the present law as long as the Board of Control were doing their job. This Bill was an administrative requirement. It was quite natural that the administration might from time to time overstep the mark at the end of the twelve months, and in such cases it was advisable to allow the further month. This would not interfere in any way with the patient's release.—Mr. EDE said that local authorities and others had of late years tried to persuade people to go into mental institutions on the plea that it would be for only a limited period, and that a short stay would probably prove completely effective. It was very undesirable that anything should be done which might make the period of detention any longer. The Board should collect the papers earlier, so that the decision might be announced within the period for which the certificate ran.

Sir DONALD SOMERVELL (Attorney-General) said it had been thought best, in the interests of the patient, to extend rather than to shorten the time for the medical officers' reports required for the annual review. If they put the date back, the medical officer would have to submit the report roughly a month sooner. Under the present scheme, the Board would have a certain latitude for exceptional cases and for the final making of orders. The reports of the medical officers would come in after the Bill was passed on the same dates as at present, so that in normal cases the whole thing could be disposed of before the end of the quarter day. There was no reason why a patient should not be released as soon after the Bill was passed as he would now. The extra month, which the Board had no intention of using for delay, would enable the Board to deal with exceptional cases and give them time for the necessary administrative procedure. Replying to Mr. Logan, Sir Donald added that the Board had full power under the Bill to discharge a patient at any intermediate date. There was the further

[2] Houssay, B. A., Biasotti, A., and Rietti, *C.R. Soc. Biol., Paris*, 1932, **108**, 479.

safeguard, in addition to the annual and quinquennial reviews, that every case was reviewed by the visiting justices at the age of 21. Where there was a possibility of recovery there was no reason to believe that the recommendations of the visitors under the local authority would not be acted on as promptly under this Bill as hitherto.

NOTES ON CURRENT TOPICS

Incurable Insanity as Ground for Divorce

ON May 24th, when the Divorce and Nullity of Marriage (Scotland) Bill was further considered by a standing committee of the House of Commons, Miss HORSBRUGH moved to omit subsection 2 of the clause which provides:—

"In any action of divorce on the ground of incurable insanity the defender shall not be held to be incurably insane, unless it is proved that he is, and has been for a period of five years immediately preceding the raising of the action, under care and treatment as an insane person, and where such care and treatment as aforesaid is proved the defender shall, unless the contrary is shown to the satisfaction of the court, be presumed to be incurably insane."

Was it possible under this subsection, she asked, to prove that insanity was curable? Could an action be brought again after five years, and if it was shown to the satisfaction of the court that there was the probability of a cure, could a further action be brought in another two or three years? Was it a case of try and try again? She asked hon. Members to consider whether they were doing a just thing to a defender who was deprived of his freedom. Not only were they going a great deal further than the English Act by putting the onus of the defence on to the insane person, but there was a further provision in the English Act as to wilful neglect or misconduct which might have conduced to the insanity. They were taking away the safeguards of the English Act.

Mr. MACQUISTEN said that this clause had arisen out of the practical working of the English Act in which the burden of proof was upon the party who was seeking divorce. It had been found that the medical profession in England was not prepared to say that any person was incurably insane. If that was so, it showed that incurable insanity was based on a fallacy.

Mr. JOHNSTON said that more than the safeguard of medical testimony was needed. Was it possible for the Secretary of State to satisfy himself personally, before an action for divorce on these grounds could be taken, not only that the Board of Control had given them information but the social and domestic circumstances of the case were such that no hardship could possibly occur?

Mr. T. M. COOPER, Lord Advocate, said that in actions for divorce on the ground of insanity a curator *ad litem* would be appointed. As to the meaning of the words "unless the contrary is shown," if the medical evidence showed that the probabilities of recovery were no greater and no less than in any other case of five years continuing insanity, the presumption of incurable insanity would hold. If, on the other hand, the medical evidence could adduce any assignable reason for alleging that recovery within a definite period was more probable than in the general run of cases, the contrary would be proved and the presumption would be set aside. The amendment would, in his judgment, make the Bill, if not a dead letter, entirely unworkable, and from that standpoint he felt that the committee would do well to reject it.

The amendment was negatived and the Bill was ordered to be reported to the House.

Nursing-homes in Scotland

On May 31st a Standing Committee of the House of Commons considered the Nursing Homes Registration (Scotland) Bill. A clause moved by Sir Douglas Thomson, to exempt from registration nursing-homes conducted in accordance with Christian Science principles, was withdrawn on the understanding that it would be reconsidered before the report stage.

The Bill passed through Committee and was ordered to be reported, with minor amendments, to the House.

In the House of Lords on May 30th the Sheffield Infirmary and Hospital Bill was read the third time and passed. In the House of Lords on May 31st the Street Playgrounds Bill passed through Committee, and the Housing (Rural Workers) Amendment Bill was read a second time.

QUESTION TIME

WEDNESDAY, MAY 25TH

Industrial Contributions to Hospitals

Mr. ROBERT GIBSON asked the First Lord of the Admiralty whether he was aware that the success of the new scheme for the collection of contributions for hospitals fund at the Royal Naval Torpedo Factory at Greenock would be imperilled if 5 per cent. or more of the sums collected was used up in expenses by central machinery and deducted from funds receivable by Greenock Royal Infirmary and other local institutions; and whether he would take steps to see that the funds collected locally at Greenock went direct from the torpedo factory to the local hospital institutions without deduction, thereby ensuring that the torpedo factory workers in Greenock received the maximum benefit from their contributions.—Mr. DUFF COOPER replied: The scheme for the collection of contributions to local hospital funds by means of deductions from wages is designed to benefit the maximum number of institutions and provides for the transmission of the sums collected to a committee of the British Hospital Contributory Schemes Association who will undertake the distribution to the appropriate hospital funds. I regret that exceptional treatment cannot be given in the particular case referred to by the hon. Member.—Mr. GIBSON: Is the right hon. gentleman keeping in mind the fact that he himself expressed the view in this House in answer to a question by me on July 21st last that it was desirable to ensure that hospitals which were of benefit to the Royal Naval Torpedo Factory, Greenock, should have earmarked to them contributions made at Greenock; and will the right hon. gentleman look into the matter again, so that the men's wishes with regard to the allocation of the fund shall be taken into consideration?—Mr. DUFF COOPER: I am quite prepared to look into the matter again, but I am afraid that it would not be possible to make any exception to the general rule whereby this scheme is run as one scheme covering all the hospitals concerned.

Civilian Medical Officers at R.A.F. Recruiting Depôts

Sir REGINALD BLAIR asked the Secretary of State for Air what were the conditions of service and emoluments of the civilian medical officers employed at the recruiting depôts in the large cities; and whether the memorandum, dated March 17th, 1938, had received consideration.—Sir KINGSLEY WOOD replied: Civilian medical practitioners employed at Royal Air Force Recruiting Depôts receive an inclusive salary of £500 a year. Two officers in receipt of retired pay are paid at special rates. Appointments are on a non-pensionable basis and are subject to one month's notice on either side. I am giving consideration to the memorandum referred to by my hon. friend.

Blood Test in Paternity Cases

Mr. SORENSEN asked the Home Secretary whether his attention had been drawn to the employment of a blood test in a recent legal case involving the question of paternity; and whether, in view of the acceptance of this test by the court, he proposed to take any steps to encourage or discourage the practice in similar cases.—Mr. GEOFFREY LLOYD, Under-Secretary, Home Office, replied: My right hon. friend has seen newspaper reports about this case. There has never been any doubt that if

each of the parties to affiliation proceedings is willing to submit to a blood test evidence as to its results is admissible; and the publicity given to the recent case will, it is hoped, make the possibilities of the test more widely known to magistrates and others concerned. Legislation would, however, be required to make blood tests compulsory in cases of dispute as to paternity, and my right hon. friend can hold out no prospect of introducing legislation on this subject.

THURSDAY, MAY 26TH

Mark IV Respirators

Mr. HOPKIN asked the Home Secretary if he was aware that, up to the end of 1937, 66 per cent. of the deaths due to silicosis in the South Wales coalfield, 65½ per cent. of the totally disabled, and 70 per cent. of the partially disabled cases, occurred in the anthracite coal districts; and, in view of this, what was the reason for the delay in issuing Mark IV respirators; and what immediate steps he proposed to take to deal with this problem.—Mr. GEOFFREY LLOYD replied: My right hon. friend is fully alive to the importance of having supplies of such respirators available at an early date and he is glad to learn that various difficulties which arose as to materials and otherwise have been overcome and that the arrangements for supplying the manufacturers with requirements for production are now well advanced.—Mr. JAMES GRIFFITHS: Will the hon. gentleman consider trying these respirators experimentally in one colliery first; and will he bear in mind the fact that various medical men in this country are of the opinion that the use of these respirators ought to be carefully checked?—Mr. LLOYD: I am aware that the question is a very important one. For years it was impossible to make a respirator which was capable of resisting silica dust, but there has been a committee of the Medical Research Council and the respirator authorities and they are now fully satisfied that a solution has been achieved.—Mr. GRENFELL: Does not all the information available point to the fact that the real remedy lies not in respirators but in the suppression of dust?—Mr. LLOYD: The prevention of silicosis is a matter for the Mines Department.

Burning Pit-heaps and Public Health

Mr. TINKER asked the Minister of Health if he was aware that the health committee of the Manchester City Council had decided to get powers to experiment with a smokeless zone in one part of the city, as they were of opinion it would be beneficial to the health of the people; and would he consider giving powers to local authorities to control burning pit-heaps by establishing smokeless zones in the same way.—Mr. ELLIOT replied: I am aware that the Manchester public health committee have had this matter under review, but I have not been informed of the specific proposals in contemplation or the powers which they may think it necessary to seek. As regards the second part of the question, arrangements have been made for my Alkali inspectors, in conjunction with the inspectors of the Mines Department, to visit the burning pit-heaps and to explore the practicability of abatement and prevention. It is doubtful whether legislation would facilitate the solution of this problem.

Typhoid Outbreak at Hawick

Captain ELLISTON asked the Secretary of State for Scotland what steps were being taken to control the outbreak of typhoid fever at Hawick, in Roxburghshire; and whether the cause of the outbreak had yet been ascertained.—Mr. COLVILLE replied: From the beginning of the outbreak the local public health authorities, in coöperation with the Department of Health for Scotland, and the local practitioners, have used every means of dealing with the outbreak, of preventing its spread and of ascertaining its cause. Ample hospital accommodation for typhoid patients has been secured by bringing into use two buildings not normally utilised for cases of infectious disease. The necessary bacteriological work involved in such an outbreak has been carried out, first in the bacteriological department of Edinburgh University, and later in a special laboratory established in Hawick. As a measure of precaution the local water-supply is being chlorinated, though it has been established that the water-supply was not the vehicle of infection. Inhabitants of Hawick have also been advised to boil all milk and water. All contacts have been forbidden to handle foodstuffs. The lending library and the public swimming pool have been closed, and for a short time the public baths were also closed. In the course of the examination into the cause of the infection, exhaustive tests of the milk-supply and of the source and distribution of all foods in common use were made, and all employees engaged in production and distribution were where necessary subjected to special tests. As a result, the cause of the outbreak had been narrowed down to certain foodstuffs and it is believed that most, if not all, of the sources of infection have been cut off.

Milk Pasteurisation

Mr. ROSTRON DUCKWORTH asked the Minister of Health whether any conversations had yet taken place with representatives of local authorities with regard to the suggested legislation under which they were to have power to decide whether or not there should be compulsory pasteurisation of milk sold in the area under their control; and, if not, whether he proposed to have such consultations.—Mr. ELLIOT replied: Yes, Sir. My Department and that of my right hon. friend the Minister of Agriculture and Fisheries are in consultation with representatives of the associations of local authorities concerned.

Water-supplies

Mr. CHORLTON asked the Minister of Health whether he would state the progress made by the special committee appointed to investigate the water position in this country as to the amount, relative quantity in each area, and facilities of supply; and if he would give a table of districts in which no public supply was available.—Mr. ELLIOT replied: I would refer my hon. friend to the Year Book of the Inland Water Survey Committee published on May 11th. As regards the second part of the question, no public water-supply is available in one borough, and 11 rural districts. The following is the list: Borough of Eye,* rural districts of Broadwoodwidger, Holsworthy, Knighton, Launceston, Lodden, Mitford and Launditch,* Newton and Llandiloes, Painscastle, Smallburgh,* Swaffham, and Twrcelyn.*

Insulin Treatment of Mental Disease

Mr. RICHARDS asked the Minister of Health to what extent insulin treatment of certain types of mental disease on the lines so successfully pursued by Dr. Manfred Sakel, of Vienna, was employed in the public mental hospitals of this country.—Mr. ELLIOT replied: Insulin treatment is being applied in some 12 public mental hospitals in this country.

Taxation of Patent Medicines

Mr. CHATER asked the Secretary to the Treasury whether, in view of the interest taken at the present time in the question of the taxation of patent medicines, he would arrange for the report of the Select Committee on Patent Medicines, published in 1914, to be reprinted, in order that Members of Parliament and the public might be fully informed on this subject before legislation on this matter was brought forward in next year's Finance Bill.—Captain EUAN WALLACE replied: A copy of this report, which was reprinted in 1936, is available to hon. Members in the library, and a stock remains available through the Stationery Office.

MONDAY, MAY 30TH

Ex-Service Men and Mental Treatment

Mr. TINKER asked the Minister of Pensions if, when evidence was submitted by an applicant for pension in which it was stated that the ex-Service man's condition was due to some extent to his war experience acting on his mind, his department called in a psychologist to assist in determining the case.—Mr. H. RAMSBOTHAM replied: In every case in which an applicant produces evidence to show that his mind has been affected by his war service an expert in mental diseases is consulted.

* The local authorities for these areas have submitted applications for loan sanction for schemes of public supply.

TUESDAY, MAY 31ST

Mortality-rate for Disability Pensioners

Viscountess ASTOR asked the Minister of Pensions how many deaths occurred amongst ex-Service men in receipt of disability pensions during the twelve months ended March 31st, 1938, or the latest period of twelve months available; and if he would state the mortality-rate for disability pensioners during that period and the comparative rate for civil males of the same age-groups.—Mr. H. RAMSBOTHAM replied: The number of deaths of disability pensioners in the year ended March 31st last was 7576, their mortality-rate being 17·9 per 1000. For the general male population of corresponding ages in England and Wales the mortality-rate for the same period was approximately 13 per 1000.

Medical Examination of Mental Deficients

Mr. THOMAS HENDERSON asked the Secretary of State for Scotland if he was aware that the Scottish Board of Control refused the right of the parents of a person certified by the Board as a mental deficient and an inmate of an institution under the authority of the Board to have an independent medical examination of such certified person; and would he instruct the Scottish Board of Control to grant an independent examination on application being made.—Mr. COLVILLE replied: Mental defectives are not certified by the General Board of Control, but the Board have a statutory duty to review at stated intervals the cases of all certified defectives. On such occasions the Board may obtain a report by one or more independent medical men, and they are bound to order the discharge of a patient at any time if they are of opinion that he is not, or is no longer, a defective. A parent or guardian may apply in writing to the Board for the discharge of any defective on the ground that his mental condition does not justify further detention, and the Board may, if they think fit, require the applicant to produce a medical certificate in support of the application. I am not aware of any case in which the Board have refused to comply with the statutory provisions, but if particulars of any specific case are furnished I will have inquiry made.

Anthrax in Angus

Mr. WESTWOOD asked the Minister of Agriculture how many cases of anthrax were reported in the last report of the medical officer of health for the county of Angus under the Contagious Diseases (Animals) Act, 1894, and the Anthrax Order of 1928; and in how many cases were the sources of infection traced.—Mr. RAMSBOTHAM replied: During 1937 22 outbreaks of anthrax in Angus, in which 29 animals were affected, were reported by the county authority, and the number reported in the first quarter of 1938 was 12 outbreaks affecting 13 animals. Eight of the 1937 outbreaks, and three in the March quarter of 1938, were probably due to the farms having been infected on previous occasions. The source of infection in the other cases was not definitely traced, but it may possibly have been associated with the use on these farms of artificial feeding stuffs which in 14 cases were known to have been imported from abroad.

MEDICAL NEWS

University of Oxford

Dr. A. M. Cooke has been reappointed May fellow and reader in medicine for a further three years from Oct. 1st, 1938. Dr. A. G. Gibson has been appointed Litchfield lecturer in medicine.

University of Cambridge

On May 28th the following degrees were conferred:—

M.D.—A. W. Williams, R. M. Bolam, and J. H. Cyriax.
M.B., B.Chir.—*M. C. Hounsfield, D. C. Lavender, G. R. C. Peatfield, and R. D. Holloway.
M.B.—*G. D. Wedd. * By proxy.

Dr. R. A. McCance has been appointed to the newly created readership of medicine in the university. This appointment has been established in place of the assistant directorship of research which Dr. J. F. Brock has lately vacated to take up the chair of medicine in the University of Cape Town. Except for a small amount of teaching Dr. McCance will devote his whole time to research and to the supervision and direction of biochemical research in the department of medicine. He will also collaborate in the work in the wards.

Dr. McCance, who is thirty nine years of age, was educated at St. Bee's School, Cumberland, and saw service during the late war as an aeroplane pilot with the Grand Fleet. He went to Sidney Sussex College, Cambridge, in 1919, and after taking both parts of the natural sciences tripos, worked for three years as a research student in the school of biochemistry under Sir Gowland Hopkins. In 1925 he was appointed demonstrator of biochemistry at King's College Hospital, London. He took a Ph.D. degree at Cambridge in 1926, qualified in medicine in 1927, and graduated as M.D. two years later. At this time he was elected to the Pinsent-Darwin research studentship at Cambridge, which he held while working as assistant biochemist at King's College Hospital. In 1932 he was appointed biochemist; in 1934 he became junior physician to the hospital with charge of biochemical research, and in the following year he was elected F.R.C.P. Lond. His Goulstonian lectures of 1936, which appeared in our columns, reviewed the medical problems of mineral metabolism—a subject to which he has made a number of original contributions, mainly by experimental work on himself and other volunteers. Dr. McCance has always devoted a very large part of his time to research and he has been part author of three special reports to the Medical Research Council on the composition of English foodstuffs. He has also worked on the physiology of cerebro-spinal fluid.

Chadwick Lecture

On Thursday, June 9th, at 5 P.M., Prof. E. J. Salisbury, F.R.S., will give a public lecture for the Chadwick Trust at the Chelsea Physic Garden, Swan-walk, S.W. He will speak on plants in relation to the human environment. Further information may be had from the secretary of the trust, 204, Abbey-house, Westminster.

University of London

On Tuesday, June 14th, at 5 P.M., Prof. C. H. Best, F.R.S., will give a lecture at University College, Gower-street, W.C. He will speak on heparin and thrombosis, and the lecture will be open to the public.

University of Edinburgh

On Friday, June 10th, at 5 P.M., Prof. C. Heymans, from the department of pharmacology of the University of Ghent, will deliver a lecture on some aspects of blood-pressure regulation and experimental arterial hypertension. On Thursday, June 16th, at 5 P.M., Prof. J. B. Collip, F.R.S., who has been awarded the Cameron prize for 1937, will lecture on results of recent studies on anterior-pituitary hormones. Both lectures will be given in the anatomy lecture theatre, University New Buildings, Teviot-place, and students and graduates are invited to attend.

Joint Tuberculosis Council

At a meeting of the council held on May 21st at the rooms of the Society of Medical Officers of Health, Dr. S. Vere Pearson, who presided, welcomed Dr. N. Lloyd Rusby and Dr. R. L. Midgley as new members, representing the Tuberculosis Association and the tuberculosis group of the Society of M.O.H.'s. The resignation of Dr. F. G. C. Blackmore was accepted with regret and Dr. W. Brand was coöpted a member of the council.

No additional committees were set up, but it was decided that the artificial pneumothorax (convener, Dr. W. W. Traill), employment (convener, Dr. J. B. McDougall), radiology (convener, Dr. G. Jessel), milk (convener, Dr. C. O. Hawthorne), gold (convener, Dr. R. L. Midgley), nursing (convener, Dr. Esther Carling), and the finance and publicity committees should remain in office. The committee dealing with work in the colonies becomes the "overseas" committee (convener, Dr. F. Heaf). A discussion on Memo. 37/T was initiated by Dr. G. Lissant Cox, who moved that the Ministry of Health be asked to resume the publication of the summary of returns of work. The returns at present available did not allow of comparison between areas of similar size and population. Dr. Jessel reported the coöption of four outside radiologists on the radiology committee. Dr. Brand reported Dr. Peter Edwards's offer to give two post-graduate courses, June 27th–29th and Sept. 26th–28th. Further post-graduate classes are to be arranged in November at Heatherwood and Brompton Hospitals.

London Hospital

The sum of £46,000 has been received in support of the £300,000 scheme for extensions and improvements by which it is hoped to mark the bicentenary of this hospital. The gifts received include 200 guineas from Queen Mary, who is a president of the hospital, and £10,000 from Lord Nuffield.

Kent County Mental Hospital, Maidstone

On May 27th Mr. Walter Elliot, the Minister of Health, opened the new admission hospital and convalescent villas at this institution, which will provide 125 more beds and special facilities for new and early cases. The admission hospital includes a special treatment unit for the overhaul of physical condition. Mr. Elliot said that there was a changing public attitude toward mental disorder. To-day we looked upon it rightly as an illness, like any other. Even now there was far too much gloom in the minds of some of the public. It should be realised that one-third of the patients admitted were discharged recovered.

International Red Cross Conference

The sixteenth International Red Cross Conference will be held in London from June 20th to 25th. The Duke of Gloucester will open the first session at St. James's Palace at noon on June 20th. The conference will consider new principles dealing with war in the air, and it will be proposed that the Geneva and Hague conventions should be merged so that land, sea, and air warfare will be dealt with in a single code of laws. A plan for the creation of neutralised hospital zones, in war areas, sponsored by the International Congress of Military Medicine will also be discussed. Other subjects on the agenda include the function and activity of the Red Cross in time of civil war, first aid on the roads of the world, the standardisation of the size of bandages and other materia medica, and the future of air ambulances. Further information may be had from the secretary of the British Red Cross Society, 14, Grosvenor-crescent, London, S.W.1.

British Orthopædic Association

The Spring meeting of this association was held on May 27th and 28th, Friday being spent at the country branch at Stanmore of the Royal National Orthopædic Hospital, and Saturday at the Wingfield-Morris Hospital, Headington. There was a large overseas contingent and on Thursday evening a dinner was given at Grosvenor House to welcome members of the Scandinavian Orthopædic Association, who had been hosts themselves the previous year. After the reading of papers on Friday morning the Robert Jones gold medal and prize was presented to Mr. H. Jackson Burrows. In the evening members and associates dined together at the Langham Hotel, Mr. Naughton Dunn again presiding. In proposing the toast of the Association Mr. H. S. Souttar paid tribute to the memory of Sir Robert Jones "to whom," he said, "you owe the creation of this great association, and the position orthopædic surgery holds to-day." Mr. Dunn, in reply, recalled the first Spring meeting in February, 1918, when Muirhead Little was president. He had in his hand letters from Osgood and Goldthwait, both of whom were present on that occasion, congratulating the association on coming of age. He had himself, he said, been present, with one exception, at every meeting. The association now had more than 100 full members and as many associate members. Mr. Harry Platt proposing the Guests indulged his passion for classification by dividing them into three well-defined groups, the third being the Scandinavian contingent to which he offered hearty and affectionate welcome. "They have," he said, "been here before"; and Prof. Walderström, replying for the Norsemen, admitted a previous invasion some centuries ago. Their present vigour was demonstrated by the forcefulness of the "Hura!" with which they acknowledged the toast. Among those present were Dr. H. Nilsonne, Dr. F. Therkelsen, Dr. E. Platou, Prof. Maffei, Dr. J. Walderström, Dr. V. S. Staermose, Dr. Ivar Palmer, Dr. Svante Orell, Dr. Monberg, Dr. Sven Kiaer, Dr. N. H. Lindström, Dr. Walter Risinger, Dr. Guildal, Prof. Poul Morville, Dr. Odelburg-Johnson, and Mr. S. Friberg. On Saturday afternoon there was a clinical demonstration at Oxford by Prof. G. R. Girdlestone and his associates, followed by tea at St. John's College, a visit to Blenheim Palace, and a farewell dinner at New College.

Out-patient Time-table for London Voluntary Hospitals

King Edward's Hospital Fund for London has just issued the May edition of the out-patient time-table to all doctors in the London area. The object of the time-table is to prevent, as far as possible, patients attending out-patient departments on the wrong day or at the wrong time. Further copies are obtainable free from the publishers, Messrs. George Barber and Son Ltd., 23, Furnival-street, E.C.4.

National Association for the Prevention of Tuberculosis

The twenty-fourth annual conference of this association is being held at B.M.A. House, Tavistock-square, London, W.C., from June 30th to July 2nd. The subjects for discussion will include: the development and organisation of anti-tuberculosis activities in rural areas; the family and tuberculosis; the control of tuberculosis in tropical and sub-tropical regions; and the mental aspects of tuberculosis. Invitations to any of the sessions may be had from the secretary-general of the association, Tavistock House North, Tavistock-square, London, W.C.1.

Institute for the Scientific Treatment of Delinquency

The sixth annual general meeting of the institute was held at British Industries House Club on May 26th, when the speakers were Mr. Norman Birkett and Mr. St. John Hutchinson. The report presented brought the account of the institute's activities up to the end of April and contained the welcome news that the waiting-list for the psychopathic clinic has been reduced satisfactorily by the appointment of a medical registrar. It is noted that attempted suicides are now less frequently referred to this clinic, their proper place being rather the ordinary psychiatric clinic. Of the 167 references during last year, 79 were for theft, 45 for sexual offences, and 14 for embezzlement, false pretences, or forgery. The week-end lecture course which followed the meeting was attended by medical men from 16 different parts of England, as far afield as Blackpool, Hull, Leeds, Liverpool, and York. Lectures were given by Dr. J. D. W. Pearce, Dr. Denis Carroll, and Mr. T. H. Marshall, University reader in sociology, and there was a general discussion on the disposal of delinquents. There has been some demand for a repetition and extension of this course.

King Edward's Hospital Fund for London

Addressing the general council of this fund on May 27th, the Duke of Kent, as president, said that in 1937 the London hospitals increased their total income by about £350,000. But expenditure also rose and the result was a very small margin of about £8000 to the good, on a turnover of over £4,500,000. This was better than in 1936, when there was a small aggregate deficit for the first time since 1926. But it was not nearly enough; for the number of hospitals with deficits had increased, and a good deal of desirable expenditure had had to be deferred. Yet the fact remained that since 1926 the aggregate income of the London hospitals had increased from a little over £3,000,000 to well over £4,000,000, and that the total receipts for capital and maintenance had grown to £5,000,000, including more than £2,600,000 in voluntary gifts and over £1,000,000 contributed by patients. The personal efforts and sacrifices entailed were worth while. For there were great advantages in having the two kinds of hospital, the voluntary and the municipal, influencing each other and coöperating to form a complete hospital service; the voluntary hospitals emphasising the values associated with freedom, elasticity, and personal initiative, and the municipal hospitals the values associated with large-scale work and centralised administration under a public authority. So that their contribution to this dual hospital service might be effective, the voluntary hospitals were trying to do two things: to increase their income, and to combine the advantages of organisation with those of freedom, by means of voluntary coöperation.

Sir Edward Peacock, the treasurer, said that the income of the King's Fund was slightly larger in 1937 than in either of the two previous years. The distribution was £302,000, for which purpose £3700 was taken from reserves.

National Physical Laboratory

Prof. R. H. Fowler, F.R.S., Plummer professor of applied mathematics in the University of Cambridge, has been appointed director of the laboratory in succession to Prof. W. L. Bragg, F.R.S., who has been elected to the Cavendish professorship of experimental physics in the University of Cambridge.

St. John Ambulance Brigade

Last year 2381 new members joined the brigade and 151 new divisions were created. The total membership has risen to 84,419, and the total number of cases for the year was 688,823. Over 9500 accidents were dealt with by members on Coronation day alone and 216 roadside huts and 1148 first-aid posts have been maintained and voluntarily staffed during 1937. The motor ambulances of the brigade also report increased activity and many members are taking part in A.R.P. work.

Appointments

ALLAN, ALASTAIR, M.B. Glasg., D.P.H., Assistant Medical Officer of Health for Greenock.

LAIRD, S. M., M.D. Glasg., D.P.H., Venereal Diseases Officer for Stoke-on-Trent.

LLOYD, OSWALD, M.B. Lond., Obstetric and Gynæcological Registrar at the Middlesex Hospital.

NORRISH, R. E., F.R.C.S. Eng., Hon. Assistant Surgeon to the South Eastern Hospital for Children, Sydenham.

OAKLEY, W. G., M.D. Camb., M.R.C.P. Lond., Physician with charge of out-patients to the Dreadnought Hospital, Greenwich.

WALTERS, J. O., M.R.C.S. Eng., House Surgeon at the Royal Waterloo Hospital, London.

WOOLF, ERNEST, M.R.C.S. Eng., Assistant Resident Medical Officer at Walton Sanatorium, Chesterfield.

King Edward Memorial Hospital, Ealing.—The following appointments are announced :—

LAURENT, L. P. E., M.D., M.R.C.P. Lond., Consulting Physician ;

PASSE, E. R. GARNETT, F.R.C.S. Eng., D.L.O., Second Consulting Laryngologist ;

TALBOT, G. G., M.B. N.Z., F.R.C.S. Eng., Ophthalmic Surgeon ;

ACHESON, HECTOR, M.B. Belf., Hon. Anæsthetist ; and

MAYALL, R. G., M.R.C.S. Eng., Hon. Anæsthetist.

Royal Aberdeen Hospital for Sick Children.—The following appointments are announced :—

CRAIG, JOHN, M.B. Aberd., M.R.C.P. Edin., Senior Hon. Physician ;

WALKER, E. R. C., M.B., F.R.C.P. Edin., Senior Assistant ; and

GORDON, IAN, M.B. Aberd., M.R.C.P. Lond., Second Assistant.

Medical Referees under the Workmen's Compensation Act, 1925 : B. R. SWORN, M.B., F.R.C.S., of Stone, Staffordshire, for the Stafford, Lichfield, Tamworth, and Uttoxeter County Court Districts (Circuit No. 26). Dr. V. E. BADCOCK, of Cornhill-on-Tweed, for the Berwick-upon-Tweed County Court District (Circuit No. 1).

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Infirmary.—Sen. Cas. O. in Out-patient Dept., £200.

Albert Dock Hosp., E.—Res. Surg. O. for Fracture Clinic, £250.

Ashton-under-Lyne, District Infirmary.—Cas. H.S., £180. Also H.S., at rate of £150.

Aylesbury, Royal Buckinghamshire Hosp.—Jun. Res. M.O., at rate of £150.

Bangor, County Hosp.—Cons. Surgeon and Cons. Physician, each 100 guineas. Also Part-time Med. Supt., £200.

Barnsley, Beckett Hosp. and Dispensary.—Jun. H.S., £150.

Barry U.D.C.—Surgeon for Accident and Surgical Hosp., £800.

Birmingham City.—M.O. for Casualty Service, £500

Birmingham City, Maternity and Child Welfare Dept.—Temp. M.O., £10 weekly.

Birmingham, Dudley-road Hosp.—Physician, £650.

Birmingham United Hosp.—Psychologist for Nerve Hosp., £500.

Bolingbroke Hosp., Wandsworth Common, S.W.—Hon. Physician.

Bolton Royal Infirmary.—Asst. Res. Surg. O., £200. Also two H.S.'s, each £150.

Boston General Hosp.—Res. M.O., at rate of £150.

Brighton Sanatorium and Infectious Disease Hosp.—Jun. Res. M.O., at rate of £250.

Brighton, Sussex Eye Hosp.—H.S., at rate of £150.

Brighton, Sussex Maternity and Women's Hosp.—Res. H.S., £130.

Bristol General Hosp.—Cas. H.S., at rate of £100. Also H.P.'s, H.S.'s, Res. Obstet. O., and H.S. to Spec. Dept., each at rate of £80.

Bristol University.—Professorship of Pathology, £1000. Also Lecturer in Pathology, £400–£500.

British Empire Cancer Campaign, 11, Grosvenor-street, S.W.—Med. Sec. and Reg., £500.

Burton-on-Trent General Infirmary.—Cas. O. and H.P., £150.

Calcutta, All India Institute of Hygiene and Public Health.—Prof. of Biochemistry, &c., Rs.1200 a month.

Cambridge, Addenbrooke's Hosp.—Res. Anæsthetist and Emergency Officer, at rate of £130.

Canterbury, Kent and Canterbury Hosp.—H.S., at rate of £125.

Cardiff, King Edward VII Welsh National Memorial Assn.—Asst. Res. M.O. for South Wales Sanatorium, £200.

Central Middlesex County Hosp., Acton-lane, N.W.—Res. Asst. M.O., £400.

Charing Cross Hosp., W.C.—Asst. Obstet. Phys.

Cheltenham General and Eye Hosp.—H.P. and two H.S.'s to Spec. Depts., each £150.

Children's Hosp., Hampstead.—Res. M.O., at rate of £150.

Connaught Hosp., Walthamstow, E.—Res. Surg. Reg. and Cas. O., at rate of £200 and £110 respectively.

Derbyshire County Council.—Asst. County M.O.H., £700.

Derbyshire Education Committee.—Asst. School M.O., £500.

Dewsbury and District General Infirmary.—Second H.S., £150.

Dreadnought Hosp., Greenwich.—H.P. and H.S., each at rate of £110.

East Ham Memorial Hosp., Shrewsbury-road, E.—H.S. to Spec. Depts. and Cas. O., at rate of £120.

Elizabeth Garrett Anderson Hosp., Euston-road, N.W.—Hon. Asst. Physician. Hon. Asst. Psychiatrist to Out-patient Dept. Also Med. Reg., £100.

Evelina Hosp. for Sick Children, Southwark, S.E.—Aural Surgeon, 50 guineas.

Folkestone, Royal Victoria Hosp.—Sen. and Jun. H.S.'s, at rate of £150 and £120 respectively.

Gloucestershire Royal Infirmary, &c.—H.P., at rate of £150.

Golden-square Throat, Nose, and Ear Hosp., W.—Hon. Asst. Surgeon. Also Clin. Assts.

Grimsby and District Hosp.—Res. Orthopædic Officer, £225.

Halifax Royal Infirmary.—Res. Surg. O., £250. Also H.P., £175.

Herefordshire General Hosp.—H.P., £100.

His Majesty's Colonial Service.—M.O.'s in Tropical Africa or Malaya.

Hosp. for Women, Soho-square, W.—Hon. Clin. Assts. to Surgeons in Charge of Out-patients. Also Res. M.O., at rate of £100.

Hull Municipal Maternity Home and Infants Hosp.—Jun. Res. M.O., at rate of £100.

Ilford, King George Hosp.—H.S., at rate of £100. Also two Hon. Asst. Physicians and Hon. Psychologist.

Ipswich, East Suffolk and Ipswich Hosp.—H.S. to Orthopædic and Fracture Dept., £144.

King Edward Memorial Hosp., Ealing.—H.S., at rate of £150.

Kingston County Hosp.—Res. Asst. M.O., at rate of £250.

Lancaster Royal Infirmary.—H.S., at rate of £130.

Leicester City Mental Hosp., Humberstone.—Locum Tenens Asst. M.O., 8 guineas per week.

Leigh Infirmary, Lancs.—Jun. H.S., at rate of £150.

Lincoln County Hosp.—Jun. H.S., at rate of £150.

Liverpool, Hahnemann Hosp., Hope-street.—Res. M.O., at rate of £120.

Liverpool Hosp. for Consumption and Diseases of the Chest.—Res. M.O., £150.

Liverpool University.—Two Lecturers (ungraded) in Dept. of Pathology, £400–£500 and £300 respectively.

London County Council.—Res. Med. Supt., £950. Also Asst. M.O.'s (Grade II), £250.

London Hosp., E.—Med. First Asst. and Reg., £300.

London University.—University Chair of Radiology, £1500. Also Examinerships.

Maidstone, Kent County Ophthalmic and Aural Hosp.—Ophth. H.S., at rate of £200.

Manchester, Ancoats Hosp.—Chief Asst. O. to Orthopædic Dept., £150.

Manchester Royal Children's Hosp., Pendlebury.—Asst. M.O. to Out-patients' Dept., at rate of £150.

Manchester Royal Infirmary.—Jun. Asst. M.O. in Radiological Dept. and Chief Asst. to Neuro-surgical Dept., each £350. Also Res. Jun. M.O. for Barnes Convalescent Hosp., at rate of £150.

Manchester, Victoria Memorial Jewish Hosp., Cheetham.—Jun. H.S. and Cas. O., and Res. M.O., at rate of £125 and £150 respectively.

Metropolitan Hosp., E.—Surgeon.

Middlesbrough Education Committee.—School Dental Surgeon, £450.

Middlesbrough, North Riding Infirmary.—Sen. H.S., £175. Also Third H.S., at rate of £140.

Mountain Ash Urban District Council and Education Committee. Asst. M.O.H., &c., £500.

National Temperance Hosp., Hampstead-road, N.W.—H.P., at rate of £100.

Newcastle-upon-Tyne Eye Hosp.—Hon. Ophth. Surgeon.

Northampton General Hosp.—Res. Anæsthetist, at rate of £150.

Norwich, Norfolk and Norwich Hosp.—H.S., £120.

Putney Hosp., Lower Common, S.W.—Res. M.O., £150.

Queen's Hosp. for Children, Hackney-road, E.—H.P., at rate of £100. Also Ophth. Surgeon and Vacancy in Dept. of Psychological Medicine.

Rainhill, Lancs, County Mental Hosp.—Asst. M.O., £550.

Redhill County Hosp., Edgware.—Jun. Res. Asst. M.O., at rate of £250.

Richmond Institution, Surrey.—Res. Asst. M.O., at rate of £250.

Romford, Oldchurch County Hosp.—Asst. Res. Surgeon, £350.

Rotherham Hosp.—Sen. H.S., £200.

Royal London Ophthalmic Hosp., City-road, E.C.—Out-patient Officer, £100.

Royal Naval Medical Service.—M.O.'s.

Royal Northern Hosp., Holloway, N.—H.S., at rate of £70.

St. Albans, Herts, Hill End Hosp.—H.P., at rate of £165.

St. Helens Hosp., Lancashire.—Sen. H.S., £225.

St. Mark's Hosp. for Cancer, &c., City-road, E.C.—H.S., at rate of £120.

St. Mary's Hosp. for Women and Children, E.—Res. Surg. O. and Res. H.P., at rate of £155 and £150 respectively.

St. Paul's Hosp. for Urological and Skin Diseases, Endell-street, W.C.—H.S., at rate of £100.
St. Peter's Hosp. for Stone, Henrietta-street, W.C.—Clin. Assts. to Hon. Staff.
Salford, Hope Hosp.—Res. Obstet. O., £400.
Salford Royal Hosp.—Two H.S.'s, each at rate of £125.
Sheffield, Jessop Hosp. for Women.—Sen. Res. Officer and H.S., at rate of £150 and £100 respectively.
Sheffield Royal Infirmary.—Clin. Asst. to Ophth. Dept., £300. Also Ophth. H.S., at rate of £150.
Southampton Borough General Hosp.—Asst. Res. M.O., £350.
Southampton, Royal South Hants and Southampton Hosp.—Res. Anæsthetist and Cas. O., each at rate of £150.
Sudan Medical Service.—Vacancy, £E720.
Sunderland County Borough Mental Hosp.—Med. Supt., £1000.
Taunton and Somerset Hosp.—H.P. and H.S., each £125.
Tilbury Hosp.—H.S., at rate of £140.
Warneford Hosp., Oxford.—Physician Supt., £1000.
West London Hosp., Hammersmith, W.—Two Cas. O.'s, each £250. Also H.P. and two H.S.'s, each at rate of £100.
Westminster Hosp. Annexe, 66, Fitzjohn's-avenue, Hampstead.—Radiologist.
Weston-super-Mare Hosp.—Res. H.P., £150.
Willesden General Hosp., Harlesden-road, N.W.—Cas. O., at rate of £100. Also Hon. Clin. Assts. to Out-patient Dept.
Windsor, King Edward VII Hosp.—H.S., at rate of £120.
Wolverhampton Education Committee.—Asst. M.O., £600.
Wolverhampton Royal Hosp.—H.S. and H.P., each at rate of £100.
Wood Green and Southgate Hosp., Bounds Green-road, N.—Second Hon. Gynæcological Surgeon.

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Horncastle (Lincoln).

Medical Diary

June 6th to June 12th

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

FRIDAY.

Ophthalmology. 5 P.M. (cases at 4.30 P.M.), annual general meeting.

Laryngology and Otology. 9.30 A.M. (Victoria Infirmary, Glasgow), Dr. A. W. Proetz: Nasal Physiology in Sinus Surgery. Mr. A. Bowen-Davies: The Paranasal Sinuses in Children. Prof. D. F. Cappell: The Pathology of Naso-pharyngeal Growths with special reference to Lympho-epithelioma. Mr. F. C. W. Capps: Lympho-epithelioma in the Nasopharynx.

SATURDAY.

Laryngology and Otology. 9.30 A.M. (Victoria Infirmary), Mr. Philip Scott: Eighth Nerve Tumours. Mr. T. O. Howie: The Otologist's Part in the Investigation of Suspected Brain Tumours. Mr. W. Stirk Adams: A Fatal Case of Otitic Cerebellar Abscess with Contra-lateral Petrositis. Dr. Dohlman (Lund, Sweden): The Mechanism In Vestibular Irritation.

RESEARCH DEFENCE SOCIETY.

THURSDAY.—3 P.M. (London School of Hygiene, Keppel-street, W.C.), Prof. C. H. Best, F.R.S.: Insulin and Diabetes—the Present Position. (Stephen Paget lecture.)

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

THURSDAY.—8.30 P.M. (11, Chandos-street, W.), Dr. R. A. Noble: Psychiatry and the Community.

SOUTH-WEST LONDON MEDICAL SOCIETY.

WEDNESDAY.—9 P.M. (Bolingbroke Hospital, Wandsworth Common, S.W.), Mr. Zachary Cope: The History of the Surgical Treatment of Abdominal Disease. (Bolingbroke lecture.)

BIOCHEMICAL SOCIETY.

SATURDAY.—2.30 P.M. (department of medical chemistry, University, Edinburgh), short communications.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

UNIVERSITY OF LONDON.

TUESDAY and THURSDAY.—5 P.M. (University College, Gower-street, W.C.), Prof. B. P. Babkin: The Physiology of the Digestive Glands.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

TUESDAY.—4.30 P.M., Dr. H. Gardiner-Hill: Diseases of the Ductless Glands.

WEDNESDAY.—Noon, clinical and pathological conference (medical). 2 P.M., Dr. Janet Vaughan: The Action of Certain Poisons on the Blood. 3 P.M., clinical and pathological conference (surgical). 4.30 P.M., Prof. J. C. Drummond, D.Sc.: Practical Aspects of Modern Vitamin Research.

THURSDAY.—2.15 P.M., Dr. Duncan White: radiological demonstration.

FRIDAY.—2 P.M., clinical and pathological conference (obstetrics and gynæcology).

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations.

ST. MARY'S HOSPITAL, W.

TUESDAY.—5 P.M. (Institute of Pathology and Research), Sir Henry Dale, F.R.S.: Chemical Agents Transmitting Nervous Excitation.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, S.W.

THURSDAY.—5 P.M., Dr. Anthony Feiling: neurological demonstration.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY.—2 P.M., Mr. James Crooks: Recognition and Treatment of Sinus Infection in Children. 3 P.M., Dr. W. G. Wyllie: Nephritis in Children.

Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY to SUNDAY.—BROMPTON HOSPITAL, S.W., Tues. and Fri., 5.15 P.M., M.R.C.P. course in chest diseases.—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W., Tues. and Thurs., 8 P.M., clinical and pathological M.R.C.P. course.—LONDON CHEST HOSPITAL, Victoria Park, E., Wed. and Fri., 6 P.M., M.R.C.P., course in heart and lung diseases.—CITY OF LONDON MATERNITY HOSPITAL, City-road, E.C., Sat. and Sun. course in obstetrics.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, S.W.

TUESDAY.—4 P.M., Dr. C. P. Symonds: The Clinical Significance of Headache.

Births, Marriages, and Deaths

BIRTHS

ARMSTRONG.—On May 23rd, at Folkestone, the wife of Dr. Reay Armstrong—a daughter.

HOLMES.—On May 27th, the wife of Surg.-Comdr. J. G. Holmes, R.N. Hospital, Haslar—a son.

RAEBURN.—On May 29th, the wife of Dr. H. A. Raeburn, Gills Hill, Radlett, Herts—a daughter.

SAVIN.—On May 24th, at the Stock Exchange Private Block, King's College Hospital, the wife of L. H. Savin, M.D., M.S., F.R.C.S.—a daughter.

STEELE-PERKINS.—On May 24th, the wife of Dr. Guy S. Steele-Perkins, Exeter—a son.

MARRIAGES

KENT—TAYLOR.—On May 28th, at Christ Church, Crouch End, Alfred Raymond Robert Kent, M.R.C.S., to Elsie Grace Taylor, elder daughter of Mr. Augustus S. Taylor, of Highgate.

PARISH—KEARY.—On May 21st, at Romsey Abbey, Hants, T. N. Parish, M.D., to Margaret L. Keary, of Weymouth.

DEATHS

COOPER.—On May 24th, at Leicester, Arthur Tanner Cooper, M.R.C.S. Eng., aged 69 years.

HARPER.—On May 30th, at Bath, John Maurice Harper, Lt.-Col. and Hon. Surg.-Col. R.A.M.C.(T.), retired, V.D., M.R.C.S. Eng., D.P.H.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 21ST, 1938

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2006; diphtheria, 1110; enteric fever, 15 (30 "expected"); pneumonia (primary or influenzal), 1336; puerperal pyrexia, 203; cerebro-spinal fever, 35; acute poliomyelitis, 3; encephalitis lethargica, 2; dysentery, 36; ophthalmia neonatorum, 110. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on May 27th was 4420, which included: Scarlet fever, 841; diphtheria, 1009 (carriers 46); measles, 1282; whooping-cough, 272; puerperal fever, 19 mothers (plus 9 babies); encephalitis lethargica, 283; poliomyelitis, 4. At St. Margaret's Hospital there were 29 babies (plus 14 mothers) with ophthalmia neonatorum.

Deaths.—In 126 great towns, including London, there was no death from small-pox or enteric fever, 26 (10) from measles, 1 (1) from scarlet fever, 17 (1) from whooping-cough, 26 (1) from diphtheria, 29 (8) from diarrhœa and enteritis under two years, and 66 (10) from influenza. The figures in parentheses are those for London itself.

Fatal cases of measles were reported from 13 great towns, Hull, Manchester, Newcastle-on-Tyne, and West Hartlepool each having 2 deaths. Birmingham reported 5 deaths from whooping-cough. Diphtheria was fatal in 17 great towns, Liverpool reporting 5 deaths, Hull 3.

The number of stillbirths notified during the week was 305 (corresponding to a rate of 42 per 1000 total births), including 41 in London.

NOTES, COMMENTS, AND ABSTRACTS

TRAFFIC IN NARCOTIC DRUGS

Russell Pasha, in his report on the work during 1937 of the narcotics bureau of the Egyptian Government, records with satisfaction the progress made since 1929 in coping with the traffic in dangerous drugs. The work of the bureau was vigorously directed in the first place to exposing and curtailing the international traffic as contemplated by the several opium conventions, and secondly to raising the price by reduction of the supply of narcotic drugs to the people of Egypt. The world's supply of contraband heroin, it is stated, still comes from the Far East and passes through Suez en route for Europe and America. An illicit heroin factory was raided in Athens and heavy sentences of imprisonment passed upon the traffickers who had formerly been expelled from Egypt. Illicit cultivation of hashish in Syria gives rise to anxiety as it is the narcotic mostly consumed by the fellahin. Russell Pasha is sceptical as to so-called "cures" of addicts, many of whom he holds "are not like 'other folk,' but rather are members of an emotionally unstable and personally inadequate group for whom little of permanent character or of social value can be accomplished."

A valuable study of the present position of the opium-smoking habit in India by R. N. and G. S. Chopra is reported in the *Indian Medical Gazette* for April. It recalls that opium-smoking, always looked down upon in India, was unknown there before the nineteenth century. It spread from China where opium-smoking had followed on tobacco-smoking which had been introduced in the latter part of the sixteenth century. The conclusions of the Drs. Chopra confirm those of previous observers—namely, that opium-smoking in excess leads to emaciation, general cachexia, lethargy, loss of will-power and of economic efficiency. The opinion is vouchsafed that opium-smoking is more deleterious to the Indian than to the Chinese.

Meanwhile at Geneva the advisory committee on the traffic in opium and other dangerous drugs and the Permanent Central Opium Board continue to watch international traffic and carry into effect the provisions of the conventions of 1912, 1925, and 1931. Mr. Lyall (United Kingdom) has been re-elected chairman of the board and Mr. May (U.S.A.) vice-chairman. Seizures of raw and prepared opium, of morphine, heroin, and cocaine continue to be reported; notably seizures of heroin, prepared opium, and morphine in the Minneapolis area where heavy sentences of fines and imprisonment were passed on members of a notorious gang of traffickers.

ADOPTION DIFFICULTIES

PROBLEMS arising in the adoption of children were discussed at a meeting of the medical section of the British Psychological Society on May 25th. Miss S. Clement Brown said that while the number of legal adoptions had steadily risen since the Adoption Act was passed in 1926 they constituted only about one-third of the total adoptions, which amounted to 15,000 or more a year. The law, she said, provided opportunity for a careful study of the child and the adopting parents, but there was great variety in the thoroughness of such inquiries. At least two-thirds of the children adopted were illegitimate, and they were for the most part adopted by married couples of child-bearing age, of whom about two-thirds were childless. Dr. W. L. Neustatter thought the earlier adoption took place the better, if the child was properly safeguarded from the risks of early weaning. It was important to take the first opportunity of telling these children the truth about themselves; small children were acute observers and would readily sense an air of mystery about themselves. They would then feel themselves different, and this was one of the most potent causes of a sense of inferiority in childhood. Mrs. E. Norman mentioned among the conditions needed for success in adoption the willingness on the part of the adopting parents to accept the child for better or for worse, and the suitability of the adopting family in respect of (*a*) age of parents and siblings; (*b*) intelligence as compared with that of the child; (*c*) emotional stability. Failure in fulfilling these conditions had played a part in some of the cases referred to child guidance clinics. The adopted child might not so readily gain a sense of security in parental love. He might not so early learn to tolerate frustration from the adopting parents if he had built up an ideal of very different real parents. Some problems had apparently arisen through the child's attempt to lead the type of life—often antisocial—that he had heard attributed to the real parents.

HOMOPLASTIC GRAFTS

IN the journal *Médicine Expérimentale*, published by the Institute of Experimental Medicine of the Ukraine, Prof. M. G. Rouditzky gives a résumé of recent experiments with grafts of the endocrine glands (1938, No. 1, p. 28). He has previously reported work on suprarenal grafts in animals; he now turns his attention to human grafts, and contrary to what might be expected has obtained better results than when working with animals. He has also found that it is possible to preserve the vitality of grafting material for as long as 45 days if it is immersed in citrated blood at a temperature of 4° C. He is under the impression that these preserved grafts provoke less reaction in the tissues of the host than material immediately transplanted. Contrary to Voronoff's teaching, he finds that testicular grafts, both fresh and preserved, are absorbed very rapidly.

REPRODUCTIVE CONSEQUENCES OF BIRTH CONTROL

THE consequences of contraceptive instruction in private practice have seldom been reported in detail and a paper by Dewees and Beebe [1] is correspondingly welcome. The material studied consists of 884 private patients seen during the twelve-year period ending in 1936. A quarter came for advice before marriage; all were white women and most came from well-to-do homes (i.e., college-trained or the equivalent); and 94 per cent. were taught the use of diaphragm (Dutch cap) and jelly.

Dewees and Beebe were able to trace 662 of these cases, and it was found that 83 per cent. of those given diaphragm and jelly were still using the method. Of those who had abandoned it 24 per cent. had done so because they no longer needed protection against pregnancy. The remainder had discarded it for various other reasons, such as dislike of the method, lack of confidence in it, and actual failure. The authors point out that an acceptability-rate of 83 per cent. is reasonably high but that the 15–20 per cent. of dissatisfied patients present a special and difficult problem. They follow Raymond Pearl's plan for estimating the success or failure of the contraceptive technique, and give for comparison pregnancy-rates derived from studies [2] of women not using contraception or using self-taught methods, and from the patients under review before they received advice. When all pregnancies are taken into consideration the figures indicate that a minimum rate of 100 births for each 100 woman-years of exposure to pregnancy risk is to be expected when no contraceptives are used; and that a similar rate for patients using self-taught contraception varies

[1] Dewees, L., and Beebe, G. W., *J. Amer. med. Ass.* April 9th, 1938, p. 1169.

[2] Pearl, R., *Ibid*, 1937, **108**, 1385; Stix, R. K., and Notestein, F. W., *Milbank mem. Fd quart. Bull.* 1935, **13**, 162; Beebe, G. W., and Gamble, C. J., unpublished data.

from 28 to 42. The figure for the women under review before they consulted Dewees or Beebe is 41, which indicates that some form of contraception was presumably being used by these patients before their first consultation. In all these series the rates are higher for first pregnancies than for second and subsequent pregnancies. The rate for the author's patients after instruction is 6, which represents a reduction of 93–96 per cent. in pregnancy risk. Alternatively, since 86 unplanned pregnancies were reported by the 622 cases followed up, it may be stated that the total failure-rate was in the region of 14 per cent.; but at least half of these failures are attributable to errors or omissions in technique. The average duration of exposure to pregnancy risk was 29 months and the average length of follow up was 39 months. In comparing the previous fertility of those who succeeded and those who failed a conspicuous difference was found; the former had a first-pregnancy rate of 69 and the latter one of 174 before their first consultation.

This paper contains evidence that the use of a cap and various spermicidal jellies (most of which were acid) does not retard conception after the method is set aside for a planned pregnancy. A total of 167 such pregnancies were reported to the authors, and in 136 of these the time required for conception to occur was known. It appears that 50 per cent. were conceived within a month, 76 per cent. within three months, and 90 per cent. within six months of ceasing to use contraceptives. Inasmuch as at least 40 per cent. of these women had used a diaphragm and jelly before their first pregnancy, these figures do not support the contention [3] that the use of caps and acid jellies from the beginning of marriage leads to sterility later.

TWO NEW STETHOSCOPES

THE Capac Co. Ltd. (80, Station-road, London, S.W.13), which has been making acoustic apparatus for over twenty years, has lately introduced two new forms of binaural stethoscope for which certain advantages are claimed.

There are two types of chest-piece. Type A consists of a plated end, convenient to hold, into which two forms of end-piece can be screwed. These are made of aluminium alloy. In one form the aperture is conical, in the other it is concave, giving a shallower air-space; the former is recommended for auscultation of the heart, the latter for listening to the respiratory sounds. Type B chest-piece has a small chamber with a diaphragm protected by a wire grating, inserted between the finger-grip and the end-piece, of which there are the same two forms as in type A. Two kinds of head-frame are also made by the Capac Company; one is a folding spring model, the other is a rigid form with a transverse spring and milled clamping nut. The ear-plugs are made of rubber and are comfortable in use.

All parts of these stethoscopes are well made and highly finished. We have submitted both types to a thorough test, and find them convenient and comfortable, conducting both cardiac and respiratory sounds well. The diaphragm form (type B) amplifies the sounds without distortion, and should be useful to those with impaired hearing.

YOGA

A CRITICAL account [4] of Indian mystical practice by a scientifically trained writer with first-hand knowledge of the self-discipline of Yoga will interest all sorts of people. Psychopathologists will find that the theory of the unconscious has affinities with deep Yogal states and that the death-instinct of Freud is allied to the denial of existence which Nirvana presupposes. The breathing exercises are worth considering in the light of theories of early oral erotism. The body postures described as health giving may well suggest additions to the scheme of exercises devised by physiotherapists to meet current demands. The theory of posture-breathing which cultivates a state of isolation from sense stimulation deserves the consideration not only of physiologists but of statesmen who may find in it a means of obtaining isolation from a distracted world.

[3] See *Lancet*, 1938, **1**, 462, 517, 576.

[4] Yoga. By Kovoor T. Behanan, Ph.D., Institute of Human Relations, Yale University. London: Martin, Secker, and Warburg. 1937. Pp. 270. 10*s*. 6*d*.

HYPEROSTOSIS FRONTALIS INTERNA

ALTHOUGH the syndrome including frontal hyperostosis, virilism, and adiposity in women was described by Morgagni as long ago as 1761, the condition has only lately begun to attract much attention. G. G. J. Rademaker, who describes 5 cases under his own observation, states that up to 1900 only 50 had been reported (*Ned. Tijdschr. Geneesk.* 1938, **82**, 2245). The characteristic sign of the disease is the deposition of bone on the inner aspect of the os frontale, which can be detected during life by X ray examination. The thickening is nodular on the surface and sometimes exceeds a centimetre in depth; it lies on either side of the median line, which remains free, so that a deep groove always divides the thickened area into two symmetrical halves. It consists of spongy bone, containing large numbers of osteoblasts; the underlying dura is usually thickened and firmly fixed to the bone.

Morgagni's syndrome is often associated with dementia and atrophy of the brain, but in only 1 of Rademaker's 5 cases were mental symptoms (delusions and a suicidal tendency) prominent; in the others the chief symptoms were attacks of headache and vomiting, though all these patients complained of loss of spirits and 2 of weakness of memory. Obesity was evident in 3, and 3 showed increased hair on the chin and upper lip. Similarly, disturbances of vision were met with in 3, and dizziness and signs of ataxia in the same number. The blood calcium was found in all 5 cases to be somewhat high, though within the limit of normal. Rademaker suggests giving a calcium-poor diet and injections of parathyroid extract. One of his patients was treated by operation (removal by trephine of part of the thickened area) and decided improvement followed.

THE AUTOBIOGRAPHY OF AN EXTRAVERT

THOUGH the dust-cover specifically calls his book [1] a doctor's autobiography, Dr. Dearden, inside, asserts that it is nothing of the kind. His idea, one gathers, was to show what curious things do occur in life, to be sure, and if the book seems autobiographical at times that is because so many of the curious things in it actually happened to him. Fortunately for us, he does not mind undressing in public, as he assures us before proceeding to disrobe; and if he sometimes yields to a natural impulse to retain a veil or two, these are apt to be so disarmingly transparent that he appears the more engaging for them. He has a trick of decrying in himself qualities which the rest of us would be pleased to announce as virtues. One of these deplorable tendencies was clearly of singular service to a nervous school-fellow who was afraid of the dark. His adventures demonstrate the advantage of being an extravert rather than an introvert, for in spite of the morbid broodings of his adolescence Dr. Dearden seems to have had the practical vigour and attack of the extravert in his composition from the word go. Some of his experiences could be matched by most doctors, but others are peculiar to himself: how many of us, for example, can claim to have performed with a travelling strong man or to have witnessed a Lancashire puncing match? But whether he is recounting strange things or adorning a quite ordinary tale Dr. Dearden is a good showman and keeps the reader's interest. And if his gusto is sometimes generously broad that is a characteristic which he shares with Shakespeare and Gracie Fields.

[1] The Wind of Circumstance. By Harold Dearden. London: William Heinemann. 1938. Pp. 351. 12*s*. 6*d*.